```
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* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1          Web Page for STN Seminar Schedule - N. America
 NEWS  2  MAR 15  WPIDS/WPIX enhanced with new FRAGHITSTR display format
 NEWS  3  MAR 16  CASREACT coverage extended
 NEWS  4  MAR 20  MARPAT now updated daily
 NEWS  5  MAR 22  LWPI reloaded
 NEWS  6  MAR 30  RDISCLOSURE reloaded with enhancements
 NEWS  7  APR 02  JICST-EPLUS removed from database clusters and STN
 NEWS  8  APR 30  GENBANK reloaded and enhanced with Genome Project ID field
 NEWS  9  APR 30  CHEMCATS enhanced with 1.2 million new records
 NEWS 10  APR 30  CA/CAplus enhanced with 1870-1889 U.S. patent records
 NEWS 11  APR 30  INPADOC replaced by INPADOCDB on STN
 NEWS 12  MAY 01  New CAS web site launched
 NEWS 13  MAY 08  CA/CAplus Indian patent publication number format defined
 NEWS 14  MAY 14  RDISCLOSURE on STN Easy enhanced with new search and display
                  fields
 NEWS 15  MAY 21  BIOSIS reloaded and enhanced with archival data
 NEWS 16  MAY 21  TOXCENTER enhanced with BIOSIS reload
 NEWS 17  MAY 21  CA/CAplus enhanced with additional kind codes for German
                  patents
 NEWS 18  MAY 22  CA/CAplus enhanced with IPC reclassification in Japanese
                  patents
 NEWS 19  JUN 18  CA/CAplus to be enhanced with pre-1967 CAS Registry Numbers

 NEWS EXPRESS  NOVEMBER 10 CURRENT WINDOWS VERSION IS V8.01c, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 25 SEPTEMBER 2006.

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 NEWS IPC8     For general information regarding STN implementation of IPC 8

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* * * * * * * * * * * * * * * STN Columbus  * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 14:59:13 ON 22 JUN 2007

=> file reg
COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21
```

```
FILE 'REGISTRY' ENTERED AT 14:59:19 ON 22 JUN 2007
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STRUCTURE FILE UPDATES:    21 JUN 2007  HIGHEST RN 938223-21-3
DICTIONARY FILE UPDATES:   21 JUN 2007  HIGHEST RN 938223-21-3

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TSCA INFORMATION NOW CURRENT THROUGH December 2, 2006

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REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
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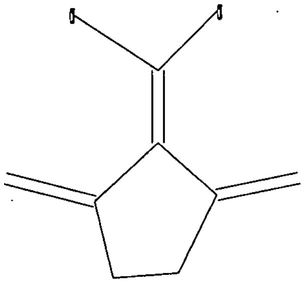
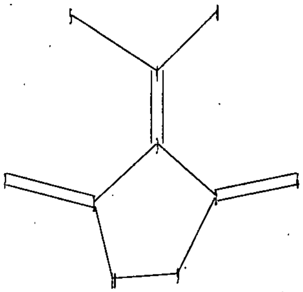
on property searching in REGISTRY, refer to:

http://www.cas.org/support/stngen/stndoc/properties.html

=>
Uploading c:\program files\stnexp\queries\10679446malononitrile.str
```





```
chain nodes :
4  5  6  7  8
ring nodes :
1  2  3  9  10
chain bonds :
1-7  2-6  3-4  4-5  4-8
ring bonds :
1-3  1-10  2-3  2-9  9-10
exact/norm bonds :
1-3  1-10  2-3  2-9  9-10
exact bonds :
1-7  2-6  3-4  4-5  4-8


Match level :
1:Atom  2:Atom  3:Atom  4:CLASS  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:Atom
10:Atom



L1      STRUCTURE UPLOADED

=>
Uploading c:\program files\stnexp\queries\10679446heptamalononitrile.str
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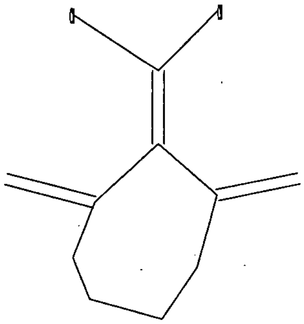

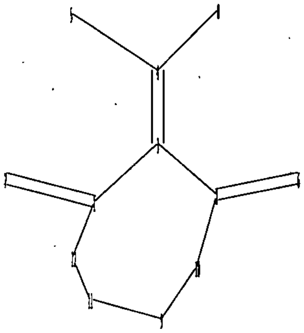

```
chain nodes :
4  5  6  7  8
ring nodes :
1  2  3  9  10  11  12
chain bonds :
1-7  2-6  3-4  4-5  4-8
ring bonds :
1-3  1-12  2-3  2-10  9-10  9-11  11-12
exact/norm bonds :
1-3  1-12  2-3  2-10  9-10  9-11  11-12
exact bonds :
1-7  2-6  3-4  4-5  4-8


Match level :
1:Atom  2:Atom  3:Atom  4:CLASS  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:CLASS
10:CLASS  11:Atom  12:Atom




L2      STRUCTURE UPLOADED

=>
Uploading c:\program files\stnexp\queries\10679446hexamalononitrile.str
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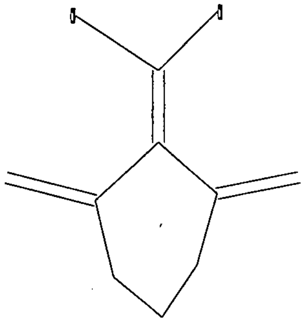

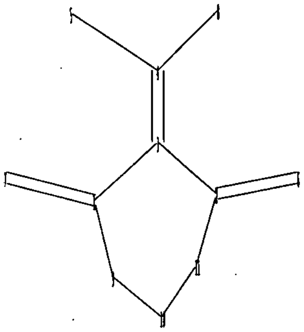

```
chain nodes :
4  5  6  7  8
ring nodes :
1  2  3  9  10  11
chain bonds :
1-7  2-6  3-4  4-5  4-8
ring bonds :
1-3  1-9  2-3  2-11  9-10  10-11
exact/norm bonds :
1-3  1-9  2-3  2-11  9-10  10-11
exact bonds :
1-7  2-6  3-4  4-5  4-8
```

```
Match level :
1:Atom  2:Atom  3:Atom  4:CLASS  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:Atom
10:CLASS  11:CLASS




L3      STRUCTURE UPLOADED

=> s l1 sss full
FULL SEARCH INITIATED 15:00:28 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     2279 TO ITERATE

100.0% PROCESSED     2279 ITERATIONS                            81 ANSWERS
SEARCH TIME: 00.00.01

L4             81 SEA SSS FUL L1

=> s l2 sss full
FULL SEARCH INITIATED 15:00:32 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     2279 TO ITERATE

100.0% PROCESSED     2279 ITERATIONS                             0 ANSWERS
SEARCH TIME: 00.00.01

L5              0 SEA SSS FUL L2

=> s l3 sss full
FULL SEARCH INITIATED 15:00:37 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     2279 TO ITERATE

100.0% PROCESSED     2279 ITERATIONS                            37 ANSWERS
SEARCH TIME: 00.00.07

L6             37 SEA SSS FUL L3

=> s cyclopentanemalononitrile
L7            17 CYCLOPENTANEMALONONITRILE

=> s cyclohexanemalononitrile
L8            50 CYCLOHEXANEMALONONITRILE

=> s cycloheptanemalononitrile
L9             4 CYCLOHEPTANEMALONONITRILE

=> s l3 or l4 or l5 or l6 or l7 or l8 orl9
COMBINATION OF STRUCTURE AND TEXT TERMS NOT VALID
The query entered contains both search terms created by
structure-building or screen commands and text search terms.  L#s
created via the STRUCTURE or SCREEN commands must be searched in the
structures files separately from text terms or profiles.  The L#
answer sets from structure searches can be used in crossover searches
and can be combined with text terms.

=> s l3 or l4 or l5 or l6 or l7 or l8 or l9
L4 MAY NOT BE USED HERE
The L-number entered was not created by a STRUCTURE or SCREEN command.

=> s l3 or l5 or l6 or l7 or l8 or l9
L5 MAY NOT BE USED HERE
The L-number entered was not created by a STRUCTURE or SCREEN command.

=> file caplus
COST IN U.S. DOLLARS                                  SINCE FILE      TOTAL
```

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                                                ENTRY     SESSION
FULL ESTIMATED COST                             532.05     532.26

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FILE LAST UPDATED: 21 Jun 2007  (20070621/ED)

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=> s l3 or l5 or l6 or l7 or l8 or l9
   REG1stRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.




SAMPLE SEARCH INITIATED 15:02:20 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -      115 TO ITERATE

100.0% PROCESSED      115 ITERATIONS                              2 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE   **COMPLETE**
                        BATCH    **COMPLETE**
PROJECTED ITERATIONS:         1657 TO     2943
PROJECTED ANSWERS:               2 TO      124

L10            2 SEA SSS SAM L3


L11           2 L10


              0 L5
             17 L6
             80 L7
            210 L8
             24 L9
L12         253 L11 OR L5 OR L6 OR L7 OR L8 OR L9

=> d his

     (FILE 'HOME' ENTERED AT 14:59:13 ON 22 JUN 2007)
     FILE 'REGISTRY' ENTERED AT 14:59:19 ON 22 JUN 2007
L1              STRUCTURE UPLOADED
L2              STRUCTURE UPLOADED
L3              STRUCTURE UPLOADED
L4           81 S L1 SSS FULL
L5            0 S L2 SSS FULL
L6           37 S L3 SSS FULL
L7           17 S CYCLOPENTANEMALONONITRILE
L8           50 S CYCLOHEXANEMALONONITRILE
L9            4 S CYCLOHEPTANEMALONONITRILE

     FILE 'CAPLUS' ENTERED AT 15:02:15 ON 22 JUN 2007
                S L3 OR L5 OR L6 OR L7 OR L8 OR L9

     FILE 'REGISTRY' ENTERED AT 15:02:20 ON 22 JUN 2007
L10           2 S L3

     FILE 'CAPLUS' ENTERED AT 15:02:22 ON 22 JUN 2007
L11           2 S L10
L12         253 S L11 OR L5 OR L6 OR L7 OR L8 OR L9

=> s l4
L13         42 L4

=> s l6
L14         17 L6

=> s l7 or l8 or l9
            80 L7
           210 L8
            24 L9
L15        238 L7 OR L8 OR L9

=> s l13 or l14 or l15
             6 1L4
L16        279 L13 OR 1L4 OR L15

=> s l16 and (cyanine or polymethine)
         15753 CYANINE
          1404 CYANINES
         16174 CYANINE
                 (CYANINE OR CYANINES)
          2831 POLYMETHINE
           251 POLYMETHINES
          2893 POLYMETHINE
                 (POLYMETHINE OR POLYMETHINES)
L17         19 L16 AND (CYANINE OR POLYMETHINE)

=> s l16 and photopolymer?
         17007 PHOTOPOLYMER?
         22287 PHOTOPOLYMN
           330 PHOTOPOLYMNS
         22375 PHOTOPOLYMN
                 (PHOTOPOLYMN OR PHOTOPOLYMNS)
          1488 PHOTOPOLYMD
          1142 PHOTOPOLYMG
         32129 PHOTOPOLYMER?
                 (PHOTOPOLYMER? OR PHOTOPOLYMN OR PHOTOPOLYMD OR PHOTOPOLYMG)
L18          2 L16 AND PHOTOPOLYMER?

=> d l17 all 1-19

L17  ANSWER 1 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   2004:562900  CAPLUS
DN   141:396833
```

```
ED   Entered STN:  14 Jul 2004
TI   Synthesis and absorption spectral properties of bis-methine dyes
     exemplified by 2,5-bis-arylidene-1-dicyanomethylene-cyclopentane
AU   Asiri, A. M.
CS   Department, Faculty of Science, King Abdul-Aziz University, Jeddah, 21589,
     Saudi Arabia
SO   Journal of the Chemical Society of Pakistan (2004), 26(1), 57-60
     CODEN: JCSPDF; ISSN: 0253-5106
PB   Chemical Society of Pakistan
DT   Journal
LA   English
CC   41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic
     Sensitizers)
     Section cross-reference(s): 24, 73
OS   CASREACT 141:396833
AB   A range of methine dyes has been synthesized by condensation of the highly
     electroneg. active methylene compound dicyanomethylenecyclopentane with the
     formyl group of substituted benzaldehydes.  The electronic absorption
     spectra of the dyes were investigated.  In general, substituents on the
     aromatic aldehyde moiety have a significant effect on the visible absorption
     maxima of the dyes; increasing the solvent polarity also had a pronounced
     effect on the absorption maxima.
ST   cyanine dye cyclopentylidenemalononitrile deriv prepn spectra
IT   Cyanine dyes
     Solvatochromism
     UV and visible spectra
        (preparation and spectra of bis-methine dyes)
IT   577995-33-6P 577995-34-7P 577995-35-8P
     577995-36-9P 577995-37-0P 577995-38-1P
     790696-46-7P
     RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
     engineered material use); PREP (Preparation); USES (Uses)
        (dye; preparation and spectra of bis-methine dyes)
IT   19226-99-4P
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
     (Reactant or reagent)
        (in preparation bis-methine dyes)
IT   1087-07-6P   5447-52-9P   42019-83-0P   330567-38-9P   577995-40-5P
     790696-44-5P
     RL: SPN (Synthetic preparation); PREP (Preparation)
        (in preparation bis-methine dyes)
IT   5660-83-3P, Cyclopentylidenemalononitrile
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
     (Reactant or reagent)
        (intermediate; preparation and spectra of bis-methine dyes)
IT   577995-41-6P
     RL: SPN (Synthetic preparation); PREP (Preparation)
        (orange dye; preparation and spectra of bis-methine dyes)
IT   109-77-3, Malononitrile   120-92-3, Cyclopentanone
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (starting material; preparation and spectra of bis-methine dyes)
IT   98-03-3P, Thiophene-2-carboxaldehyde   100-10-7P, 4-
     (Dimethylamino)benzaldehyde   135-02-4P, 2-Methoxybenzaldehyde
     19005-93-7P, Indole-2-carboxaldehyde
     RL: SPN (Synthetic preparation); PREP (Preparation)
        (starting material; preparation and spectra of bis-methine dyes)
IT   577995-42-7P
     RL: SPN (Synthetic preparation); PREP (Preparation)
        (yellow dye; preparation and spectra of bis-methine dyes)

L17  ANSWER 2 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   2003:427259  CAPLUS
DN   139:181532
ED   Entered STN:  04 Jun 2003
TI   Synthesis and absorption spectral properties of bis-methine dyes
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     exemplified by 2,5-bis-arylidene-1-dicyanomethylene-cyclopentanes
AU   Asiri, Abdullah Mohamed
CS   Chemistry Department, Faculty of Science, King Abdul-Aziz University,
     Jeddah, 21589, Saudi Arabia
SO   Bulletin of the Korean Chemical Society (2003), 24(4), 426-430
     CODEN: BKCSDE; ISSN: 0253-2964
PB   Korean Chemical Society
DT   Journal
LA   English
CC   41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic
     Sensitizers)
     Section cross-reference(s): 25, 27, 73
OS   CASREACT 139:181532
AB   A range of methine dyes has been synthesized by condensation of the highly
     electroneg. active methylene compound dicyanomethylenecyclopentane (derived
     from cyclopentanone and malononitrile) with the formyl group of
     substituted benzaldehydes.  The electronic absorption spectroscopic
     properties of the dyes were investigated.  In general, substituents on the
     aromatic aldehyde moiety have a significant effect on the visible absorption
     maxima of the dyes; increasing the solvent polarity also showed a
     pronounced effect on the absorption maxima.
ST   polymethine dye dicyanomethylenecyclopentane prepn absorption
     spectra solvatochromism
IT   Cyanine dyes
     Solvatochromism
     UV and visible spectra
        (preparation and spectral properties of bisarylidene(dicyanomethylene)cyclop
        entane dyes)
IT   1087-07-6P   5447-52-9P 5660-83-3P, Dicyanomethylenecyclopentane
     19226-99-4P   42019-83-0P   53013-59-5P   330567-38-9P   577995-40-5P
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
     (Reactant or reagent)
        (dye intermediate; preparation and spectral properties of
        bisarylidene(dicyanomethylene)cyclopentane dyes)
IT   100-10-7, 4-(Dimethylamino)benzaldehyde   109-77-3, Malononitrile
     120-92-3, Cyclopentanone
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (dye starting material; preparation and spectral properties of
        bisarylidene(dicyanomethylene)cyclopentane dyes)
IT   577995-33-6P 577995-34-7P 577995-35-8P
     577995-36-9P 577995-37-0P 577995-38-1P
     577995-39-2P
     RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
     engineered material use); PREP (Preparation); USES (Uses)
        (dye; preparation and spectral properties of bisarylidene(dicyanomethylene)c
        yclopentane dyes)
IT   577995-41-6P
     RL: SPN (Synthetic preparation); TEM (Technical or engineered material
     use); PREP (Preparation); USES (Uses)
        (orange dye; preparation and spectral properties of dyes)
IT   93-02-7, 2,5-DiMethoxybenzaldehyde   120-14-9, 3,4-DiMethoxybenzaldehyde
     120-57-0, 1,3-Benzodioxole-5-carboxaldehyde   135-02-4,
     2-Methoxybenzaldehyde
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (preparation and spectral properties of dyes)
IT   577995-42-7P
     RL: SPN (Synthetic preparation); TEM (Technical or engineered material
     use); PREP (Preparation); USES (Uses)
        (yellow dye; preparation and spectral properties of dyes)
RE.CNT  14     THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Allen, R; Colour Chemistry 1971
(2) Asiri, A; Dyes and Pigments 1999, V42, P209 CAPLUS
(3) Attia, A; Pharmazie 1998, V37, P551
(4) Brown, G; Photochromism 1971
```

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(5) Carsey, T; J Am Chem Soc 1979, V101, P4502 CAPLUS
(6) Fabian, J; Light Absorption of Organic Colorants 1980
(7) Griffiths, J; Rev Prog Coloration 1981, V11, P37 CAPLUS
(8) Irick, G; J Chem Eng Data 1971, V16, P118 CAPLUS
(9) Irick, G; Text Chem Color 1969, V1, P178 CAPLUS
(10) Jager, H; Chem Ber 1962, V95, P242
(11) Le Guillanton, G; Acad Sci 1972, VC274, P895 CAPLUS
(12) Loutfy, R; J Phys Chem 1953, V49, P1375
(13) Prajapati, D; J Chem Soc Perkin Trans 1 1993, P739 CAPLUS
(14) Wehry, E; Modern Fluorescence Spectroscopy 1976

L17  ANSWER 3 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1998:76155  CAPLUS
DN   128:186526
ED   Entered STN:  09 Feb 1998
TI   Thermal recording material and method providing images with high gradation
     and stable density
IN   Washisu, Shintarou; Usami, Tomomasa
PA   Fuji Photo Film Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 25 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  B41M005-26
     ICS  B41M005-30; G03C001-498
CC   74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
FAN.CNT 1
     PATENT NO.          KIND   DATE         APPLICATION NO.        DATE
     ---------------     ----   --------     --------------------   --------
PI   JP 10029376          A     19980203     JP 1996-187938         19960717
PRAI JP 1996-187938             19960717
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
 --------------  -----  -----------------------------------------------
 JP 10029376     ICM    B41M005-26
                 ICS    B41M005-30; G03C001-498
                 IPCI   B41M0005-26 [ICM,6]; B41M0005-30 [ICS,6]; G03C0001-498
                        [ICS,6]
                 IPCR   B41M0005-28 [I,C*]; B41M0005-28 [I,A]; B41M0005-26
                        [I,C*]; B41M0005-26 [I,A]; B41M0005-30 [I,C*];
                        B41M0005-30 [I,A]; B41M0005-323 [I,A]; B41M0005-337
                        [I,A]; B41M0005-40 [I,C*]; B41M0005-46 [I,A];
                        G03C0001-498 [I,C*]; G03C0001-498 [I,A]
OS   MARPAT 128:186526
GI
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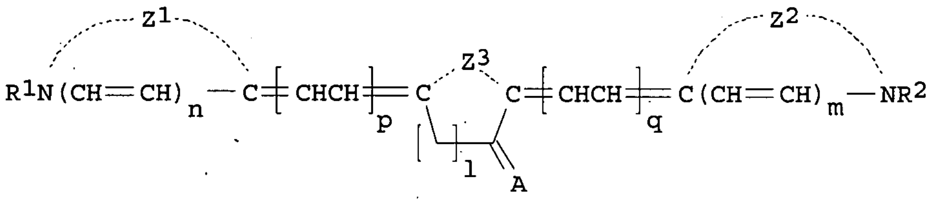

I

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AB   The IR laser-sensitive recording material has a support and a
     heat-sensitive layer at least containing an organic Ag salt, its developer,
     cyanines I (Z1, Z2 = atoms required to form N-containing heterocyclic
     ring; Z3 = divalent hydrocarbon group required to form 5- or 6-membered
     ring; R1, R2 = H, alkyl; A = O, S, imino, divalent organic residue; l, m, n =
     0, 1; p, q = 0-2) as an IR absorbing dye, and a water-soluble binder.  Three
     methods consisting of the following sequence of exposure steps of the
     above material are claimed: (1) a step A of thermal imagewise exposure at
     color forming temps. by IR laser beam modulated corresponding to recording
     information and a step B of all over exposure below color forming temps.
     after the imagewise exposure; (2) the step B and the step A; (3) the step
     B, the step A, and the second step B.  The material shows high absorption
     efficiency to IR laser light and colorless background, the method
     providing images with high gradation and stable d.
ST   thermal recording material org silver salt; laser beam sensitive thermal
     printing material; cyanine dye laser beam absorbing
IT   Thermal printing
        (IR laser-sensitive thermal printing material containing cyanine
        for laser beam-heat conversion)
IT   Encapsulation
        (in IR laser-sensitive thermal printing material containing cyanine
        for laser beam-heat conversion)
IT   2256-48-6 2509-86-6 112015-38-0
     RL: MOA (Modifier or additive use); TEM (Technical or engineered material
     use); USES (Uses)
        (IR laser-sensitive thermal printing material containing cyanine
        for laser beam-heat conversion)
IT   2489-05-6, Silver behenate
     RL: TEM (Technical or engineered material use); USES (Uses)
        (IR laser-sensitive thermal printing material containing cyanine
        for laser beam-heat conversion)
IT   99-24-1, Methyl gallate
     RL: TEM (Technical or engineered material use); USES (Uses)
        (developer; IR laser-sensitive thermal printing material containing
        cyanine for laser beam-heat conversion)
IT   119-39-1, 1(2H)-Phthalazinone
     RL: CAT (Catalyst use); USES (Uses)
        (developing accelerator; IR laser-sensitive thermal printing material
        containing cyanine for laser beam-heat conversion)

L17  ANSWER 4 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1993:682298  CAPLUS
DN   119:282298
ED   Entered STN:  25 Dec 1993
TI   Infrared laser thermal recording materials using cyanine dye
IN   Hosoi, Noryuki; Inagaki, Yoshio
PA   Fuji Photo Film Co Ltd, Japan
SO   Jpn. Kokai Tokkyo Koho, 16 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  B41M005-26
     ICS  B41M005-28
CC   74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   JP 05124339          A     19930521    JP 1991-313465         19911101
PRAI JP 1991-313465             19911101
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
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 JP 05124339      ICM    B41M005-26
                  ICS    B41M005-28
                  IPCI   B41M0005-26 [ICM,5]; B41M0005-28 [ICS,5]
                  IPCR   B41M0005-28 [I,C*]; B41M0005-28 [I,A]; B41M0005-26
                         [I,C*]; B41M0005-26 [I,A]; B41M0005-30 [I,C*];
                         B41M0005-30 [I,A]; B41M0005-337 [I,A]; B41M0005-40
                         [I,C*]; B41M0005-46 [I,A]
GI
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* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

AB   The title materials comprises a support with a coating of a heat-sensitive
     layer containing a colorless coloring component (A), another component (B)
     which reacts with A to form a color, in which ≥1 of A and B is
     microencapsulated, and an IR-absorbing dye I [R1-2= H, alkyl; Z1-2 = atoms
     required to form a N-containing heterocycle; Z3 = divalent hydrocarbon
     required to form a 5- or 6-membered ring; Z4 = O, S, imino, divalent organic
     group; l, m, n = 0, 1; p, q = 0-2].  The materials show good thermal
     sensitivity and provide high quality images without fog by using low power
     IR laser.  Thus, a PET film was coated with a composition containing Crystal
Violet
     lactone-containing microcapsules, II, p-HOC6H4CO2CH2Ph, p-
     HOC6H4CH(CHEtBu)C6H4OH-p, and III, and with a protective layer to give a
     thermal recording sheet.
ST   thermal recording material IR laser; IR absorbing cyanine dye
     recording; coloring component microcapsule thermal recording
IT   Thermographic copying
        (IR-sensitive, materials for, containing IR-absorbing agent)
IT   Printing, nonimpact
        (thermal, IR-sensitive, materials for, containing IR-absorbing agent)
IT   2256-48-6 112015-38-0   151359-11-4
     RL: USES (Uses)
        (IR-absorbing dye, IR-sensitive thermal recording material containing)
IT   94-18-8   53721-15-6   74462-02-5
     RL: USES (Uses)
        (color-developer, IR-sensitive thermal recording material using)
IT   92-77-3   107097-59-6
     RL: USES (Uses)
        (coupler, IR-sensitive thermal recording material using, diazo compound
        and)
IT   68015-88-3
     RL: USES (Uses)
        (microencapsulated, IR-sensitive thermal recording material using,
        coupler and)
IT   1552-42-7, Crystal Violet lactone   92601-66-6
     RL: USES (Uses)
        (microencapsulated, color-former, IR-sensitive thermal recording
        material using)

L17  ANSWER 5 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1992:593604  CAPLUS
DN   117:193604
ED   Entered STN:  15 Nov 1992
TI   Preparation of trimethine and merocyanine dyes with sterically fixed
     carbocyclic chains
IN   Fanghaenel, Egon; Kamm, Michael; Goerlitz, Gunter
PA   Technische Hochschule "Carl Schorlemmer" Leuna-Merseburg, Germany
SO   Ger. Offen., 5 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
IC   ICM  C09B023-10
ICA  B41M005-26; G03C001-10
CC   41-6 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic
     Sensitizers)
FAN.CNT 1
     PATENT NO.          KIND    DATE          APPLICATION NO.        DATE
     ---------------     ----    --------      --------------------   --------
PI   DE 4042010           A1     19920625      DE 1990-4042010        19901222
PRAI DE 1990-4042010             19901222
CLASS
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 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
 --------------  -----  ----------------------------------------------
 DE 4042010      ICM    C09B023-10
                 ICA    B41M005-26; G03C001-10
                 IPCI   C09B0023-10 [ICM,5]; C09B0023-00 [ICM,5,C*];
                        B41M0005-26 [ICA,5]; G03C0001-10 [ICA,5]
                 IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]
OS   MARPAT 117:193604
GI
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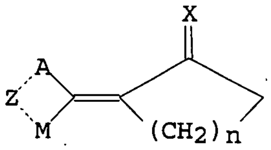

I

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AB   The title dyes (I; A, M, Z = O, S, Se, imino, substituted C, double bond;
     X = substituted methylene optionally a part of or attached to a cyclic
     group; n = 0-4) are obtained for use as optical recording or laser dyes.
     Thus, 3-ethyl-2-(2-oxo-1-cyclopentylidene)-2,3-dihydrobenzothiazole and
     Et3O+ BF4- were allowed to stand overnight in CH2Cl2 and the product was
     treated with CH2(CN)2 and Et3N in pyridine to give 40%
     2-[2-(dicyanomethylene)-1-cyclopentylidene]-3-ethyl-2,3-
     dihydrobenzothiazole, λmax 487 nm in MeCN.
ST   merocyanine dye; trimethine dye; cyclopentylidene benzothiazole dye
IT   Dyes, cyanine
        (preparation of, with cyclopentylidenebenzothiazole groups)
IT   109-77-3, Malononitrile
     RL: USES (Uses)
        (condensation of, with ethyl(oxocyclopentylidene)dihydrobenzothiazole)
IT   144051-17-2
     RL: USES (Uses)
        (condensation of, with malononitrile)
IT   93332-88-8P   102951-29-1P   106978-00-1P   113222-72-3P
     144051-14-9P   144051-15-0P   144051-16-1P
     RL: IMF (Industrial manufacture); PREP (Preparation)
        (dye, preparation of, from benzothiazole derivative)

L17  ANSWER 6 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1990:506519  CAPLUS
DN   113:106519
ED   Entered STN:  16 Sep 1990
TI   Optical information recording materials
IN   Inagaki, Yoshio; Yabe, Masao; Adachi, Keiichi
PA   Fuji Photo Film Co., Ltd., Japan
SO   Ger. Offen., 34 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
IC   ICM  G11B007-24
     ICS  C09B023-02; C09B023-10
ICA  C09D007-12; C09D129-04; C09D139-06; C09D129-14; C09D169-00; C09D101-18;
     C09D129-10; C09D135-00; C09D125-10; C09D191-00
CC   74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
     Section cross-reference(s): 28, 41
FAN.CNT 1
     PATENT NO.          KIND    DATE          APPLICATION NO.         DATE
     ---------------     ----    --------      --------------------    --------
PI   DE 3928758           A1     19900301      DE 1989-3928758          19890830
     JP 02062281          A      19900302      JP 1988-215708           19880830
     JP 02089684          A      19900329      JP 1988-243037           19880928
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PRAI JP 1988-215708       A      19880830
     JP 1988-243037       A      19880928
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 DE 3928758      ICM    G11B007-24
                 ICS    C09B023-02; C09B023-10
                 ICA    C09D007-12; C09D129-04; C09D139-06; C09D129-14;
                        C09D169-00; C09D101-18; C09D129-10; C09D135-00;
                        C09D125-10; C09D191-00
                 IPCI   G11B0007-24 [ICM,5]; C09B0023-02 [ICS,5]; C09B0023-10
                        [ICS,5]; C09B0023-00 [ICS,5,C*]; C09D0007-12 [ICA,5];
                        C09D0129-04 [ICA,5]; C09D0139-06 [ICA,5]; C09D0139-00
                        [ICA,5,C*]; C09D0129-14 [ICA,5]; C09D0169-00 [ICA,5];
                        C09D0101-18 [ICA,5]; C09D0101-00 [ICA,5,C*];
                        C09D0129-10 [ICA,5]; C09D0129-00 [ICA,5,C*];
                        C09D0135-00 [ICA,5]; C09D0125-10 [ICA,5]; C09D0125-00
                        [ICA,5,C*]; C09D0191-00 [ICA,5]
                 IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-02
                        [I,A]; C09B0023-10 [I,A]; G11B0007-24 [I,C*];
                        G11B0007-244 [I,A]; G11B0007-247 [I,A]; G11B0007-249
                        [I,A]
 JP 02062281     IPCI   B41M0005-26 [ICM,5]; C09K0009-02 [ICS,5]; G11B0007-24
                        [ICS,5]
                 IPCR   B41M0005-26 [I,C*]; B41M0005-26 [I,A]; C09B0023-00
                        [I,C*]; C09B0023-01 [I,A]; C09B0023-02 [I,A];
                        C09B0023-10 [I,A]; C09K0009-02 [I,C*]; C09K0009-02
                        [I,A]; G11B0007-24 [I,C*]; G11B0007-24 [I,A];
                        G11B0007-244 [I,A]; G11B0007-247 [I,A]; G11B0007-249
                        [I,A]
 JP 02089684     IPCI   B41M0005-26 [ICM,5]; G11B0007-24 [ICS,5]
                 IPCR   B41M0005-26 [I,C*]; B41M0005-26 [I,A]; C09B0023-00
                        [I,C*]; C09B0023-01 [I,A]; C09B0023-02 [I,A];
                        C09B0023-10 [I,A]; G11B0007-24 [I,C*]; G11B0007-24
                        [I,A]; G11B0007-244 [I,A]; G11B0007-247 [I,A];
                        G11B0007-249 [I,A]
OS   MARPAT 113:106519
GI


* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

AB   An optical recording material for the writing, reading, and erasing of
     information by using a laser beam uses a recording layer containing a
     ≥1 dye of the structure I (R1-R3 = alkyl, aryl, or alkenyl, and
     ≥1 of R1-R3 can bond with L to form a ring; Z1-Z2 = alkyl, aryl,
     alkenyl, or together can form a ring; L - a trivalent group; G = the
     necessary atoms to form a 5- or 6-membered ring; Q = N or substituted C;
     X- = anion) and ≥1 dye of the structure II (R7 = H, halogen, alkyl,
     alkoxy, aryl, or a benzene ring; R8-R9 = H, alkyl, or aryl; Z3 = a chain
     with a terminal N or O) or III (Z4-Z5 = the necessary atoms for forming a
     heterocyclic ring; R12-R13 = H or aryl; A = O, S, imino, or a bivalent
     organic group; p1, p2, or p3 = 0 or 1; q1, q2 = 0, 1, or 2).  Thus, a
     polycarbonate plate was coated with a solution containing IV and V in
     2,2,3,3-tetrafluoropropanol to give a recording medium with a high
     reflectivity and a high carrier-to-noise ratio.
ST   laser optical recording material dye
IT   Dyes, cyanine
        (for optical recording materials)
IT   Recording materials
        (optical, laser-sensitive, containing dyes)
IT   2509-86-6   122274-46-8   127554-59-0   127809-77-2   127809-79-4
     128851-03-6   128851-05-8
     RL: TEM (Technical or engineered material use); USES (Uses)
        (optical recording materials containing, laser-sensitive)
IT   32248-28-5P
     RL: PREP (Preparation)
        (preparation and laser-sensitive optical recording material containing)
IT   122274-47-9P
     RL: PREP (Preparation)
        (preparation of, for laser-sensitive optical recording material)
IT   821-42-1, 2-Pentenedial   6028-82-6   17576-35-1, 1,3,3-Trimethoxypropene
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, in preparation of dyes for laser-sensitive optical recording
        materials)

L17  ANSWER 7 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1990:79437  CAPLUS
DN   112:79437
ED   Entered STN:  03 Mar 1990
TI   Phthalonitriles as intermediates for organic solvent-soluble
     phthalocyanine dyes
IN   Nakatsuka, Masakatsu; Ito, Naoto; Enomoto, Tsuyoshi; Oguchi, Takahisa;
     Nishizawa, Isao
PA   Mitsui Toatsu Chemicals, Inc., Japan
SO   Jpn. Kokai Tokkyo Koho, 6 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  C07C121-56
     ICS  C07C121-64
CC   41-7 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic
     Sensitizers)
FAN.CNT 1
     PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
     ---------------     ----    --------    --------------------   --------
PI   JP 01180865          A      19890718    JP 1988-1349           19880108
     JP 07094423          B      19951011
PRAI JP 1988-1349                19880108
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 JP 01180865     ICM    C07C121-56
                 ICS    C07C121-64
                 IPCI   C07C0121-56 [ICM,4]; C07C0121-64 [ICS,4]
                 ECLA   C09B047/067D
GI
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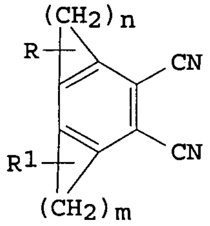
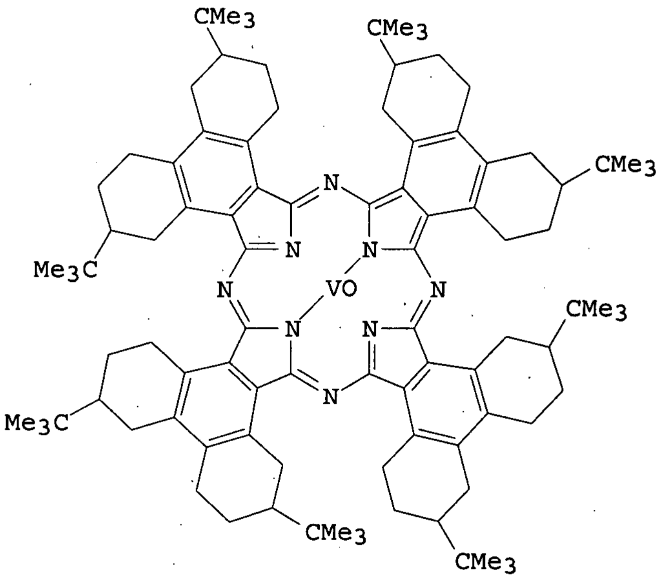


I



IV

AB Phthalonitriles I (R, R1 = H, alkyl, aryl; m, n = 3-10), useful as intermediates for phthalocyanine dyes having good solubility in organic solvents and photochem. and chemical stability, are prepared Refluxing 4-tert-butylcyclohexanone with H3BO3 in xylene for 10 h with removal of H2O gave 91% 2-(4-tert-butylcyclohexylidene)-4-tert-butylcyclohexanone, which was refluxed with malononitrile and AcONH4 in AcOH for 8 h to give 97% [2-(4-tert-butylcyclohexylidene)-4-tert-butylcyclohexylidene]malonodinitrile (II). Treatment of II with concentrated H2SO4 at 0° to room temperature for 10 h gave 78% 9-amino-10-cyano-1,2,4,5,6,8-hexahydro-3,7-di-tert-butylphenanthrene which was treated with NaNO2 in concentrated HCl-AcOH at 0° for 10 min and with aqueous Cu cyanide and NaHCO3 in C6H6 at room temperature for 5 h to give 26% 9,10-dicyano-1,2,4,5,6,8-hexahydro-3,7-di-tert-butylphenanthrene (III). Phthalocyanine dye IV prepared from III had λmax 744 nm (hexane) and hexane solubility ≥30 g/L.

ST phthalonitrile prepn phthalocyanine dye; nitrile phthalo prepn phthalocyanine dye; cyanine phthalo dye prepn phthalonitrile

IT Dyes
(phthalocyanine, intermediates for soluble, phthalonitriles as)

IT 109-77-3, Malononitrile
RL: USES (Uses)
(condensation of, with (cyclohexylidene)cyclohexanones)

IT 98-53-3, 4-tert-Butylcyclohexanone 108-94-1, Cyclohexanone, reactions 120-92-3, Cyclopentanone 502-42-1, Cycloheptanone 1502-06-3, Cyclodecanone 95925-54-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(dimerization of)

IT 1011-12-7P, 2-(Cyclohexylidene)cyclohexanone 124952-33-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation and condensation with malononitrile)

IT 50870-04-7P 124952-35-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation and diazotization of, in phthalocyanine dye manufacture)

IT 94093-74-0P 124952-34-7P
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation and reduction to aminocyanophenanthrene derivative)

IT 122891-76-3P 122997-38-0P 122997-40-4P 123007-01-2P 125363-12-4P 125363-13-5P
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of organic solvent-soluble, phthalonitrile intermediate for)

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IT   122891-77-4P   122891-78-5P   122891-81-0P   124952-30-3P   124952-31-4P
     124952-32-5P
     RL: IMF (Industrial manufacture); PREP (Preparation)
        (preparation of, as intermediate for soluble phthalocyanine dyes)
IT   91-15-6DP, 1,2-Benzenedicarbonitrile, analogs
     RL: IMF (Industrial manufacture); PREP (Preparation)
        (preparation of, as intermediates for soluble phthalocyanine dyes)

L17  ANSWER 8 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1984:481726  CAPLUS
DN   101:81726
ED   Entered STN:  01 Sep 1984
TI   Optical recording materials
PA   Canon K. K., Japan
SO   Jpn. Kokai Tokkyo Koho, 8 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   B41M005-26; G03C001-72; G11B007-24; G11C013-04; G11C017-00
CC   74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
FAN.CNT 9
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   JP 58220792          A     19831222    JP 1982-103603         19820616
     JP 01025714          B     19890518
     US 5079127           A     19920107    US 1990-512587         19900424
     US 5079128           A     19920107    US 1990-512588         19900424
     US 5246814           A     19930921    US 1991-769636         19911001
     US 5278026           A     19940111    US 1991-769397         19911001
     US 5320930           A     19940614    US 1993-86113          19930706
     US 5382497           A     19950117    US 1994-221904         19940401
PRAI JP 1982-56963        A     19820406
     JP 1982-64926        A     19820419
     JP 1982-64927        A     19820419
     JP 1982-64928        A     19820419
     JP 1982-102579       A     19820614
     JP 1982-102580       A     19820614
     JP 1982-103603       A     19820616
     JP 1982-103604       A     19820616
     JP 1982-123144       A     19820715
     US 1983-481741       B1    19830404
     US 1985-756570       B1    19850718
     US 1987-53563        B1    19870521
     US 1989-378491       B1    19890711
     US 1990-512587       A3    19900424
     US 1990-512588       A3    19900424
     US 1991-769636       A3    19911001
     US 1993-86113        A3    19930706
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 JP 58220792     IC     B41M005-26; G03C001-72; G11B007-24; G11C013-04;
                        G11C017-00
                 IPCI   B41M0005-26; G03C0001-72; G11B0007-24; G11C0013-04;
                        G11C0017-00
                 IPCR   G11C0017-00 [I,C*]; G11C0017-00 [I,A]; B41M0005-26
                        [I,C*]; B41M0005-26 [I,A]; G03C0001-73 [I,C*];
                        G03C0001-73 [I,A]; G11B0007-24 [I,C*]; G11B0007-244
                        [I,A]; G11B0007-247 [I,A]
 US 5079127      IPCI   G03C0005-00
                 NCL    430/269.000; 235/488.000; 346/135.100; 346/137.000;
                        428/156.000; 428/204.000; 428/207.000; 430/270.180;
                        430/552.000; 430/594.000; 430/616.000
 US 5079128      IPCI   G03C0005-00 [ICM,5]
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                  IPCR   G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G11B0007-24
                         [I,C*]; G11B0007-244 [I,A]; G11B0007-247 [I,A];
                         G11B0007-249 [I,A]
                  NCL    430/269.000; 235/488.000; 346/135.100; 346/137.000;
                         428/156.000; 428/204.000; 428/207.000; 430/270.180;
                         430/557.000; 430/594.000; 430/945.000; 430/964.000
 US 5246814       IPCI   G03C0005-00
                  IPCR   G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G11B0007-24
                         [I,C*]; G11B0007-244 [I,A]; G11B0007-247 [I,A];
                         G11B0007-249 [I,A]
                  NCL    430/269.000; 235/488.000; 346/135.100; 346/137.000;
                         430/270.180; 430/270.200; 430/552.000; 430/594.000;
                         430/616.000
 US 5278026       IPCI   G03C0005-00 [ICM,5]
                  IPCR   G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G11B0007-24
                         [I,C*]; G11B0007-244 [I,A]; G11B0007-247 [I,A];
                         G11B0007-249 [I,A]
                  NCL    430/269.000; 346/135.100; 346/137.000; 428/156.000;
                         428/204.000; 428/207.000; 430/270.180; 430/270.200;
                         430/557.000; 430/594.000; 430/945.000
 US 5320930       IPCI   G03C0005-00 [ICM,5]
                  IPCR   G03G0005-06 [I,C*]; G03G0005-06 [I,A]; G11B0007-24
                         [I,C*]; G11B0007-244 [I,A]; G11B0007-247 [I,A];
                         G11B0007-249 [I,A]
                  NCL    430/269.000; 235/488.000; 346/135.100; 346/137.000;
                         428/156.000; 428/204.000; 428/207.000; 430/270.180;
                         430/270.200; 430/275.100; 430/552.000; 430/594.000;
                         430/616.000
                  ECLA   G03G005/06B4B; G03G005/06D4D; G03G005/06H2D2;
                         G11B007/244; G11B007/247; G11B007/249
 US 5382497       IPCI   G03C0005-00 [ICM,6]
                  IPCR   G11B0007-24 [I,C*]; G11B0007-244 [I,A]; G11B0007-247
                         [I,A]
                  NCL    430/269.000; 235/488.000; 346/135.100; 346/137.000;
                         430/270.180; 430/270.200; 430/552.000; 430/594.000;
                         430/616.000
                  ECLA   G11B007/244; G11B007/247
GI   For diagram(s), see printed CA Issue.
AB   Optical recording materials have an organic layer containing a compound having
the
     general formula I (A = N-containing heterocycle that may be substituted; Z =
     divalent hydrocarbon group to form a 5-6-membered ring; R, R1 = H, alkyl;
     Z1 = O, S, imido, organic group that may be substituted; m, n, r = 0, 1; p, q
     = 0, 1, 2).  The organic layer has light absorption in the region >780 nm,
     and enables recording by a semiconductor laser light of wavelength near
     830 nm.  Thus, a mixture of II 3, a PhNO2 lacquer (25% in EtCOMe, OH-less
     lacquer from Daicel Chemical Ind.) 12, and EtCOMe 70 weight parts was coated on
     an Al-laminated glass plate to give a material which was used for
     recording with a 5 mW, 8 MHz Ga/Al/As laser collimated to a 1 μ spot.
ST   cyanine dye laser recording material
IT   Recording materials
        (optical, photosensitive compns. containing cyanine dye for)
IT   98-95-3, uses and miscellaneous
     RL: USES (Uses)
        (lacquer containing, photosensitive compns. containing cyanine dye
        and, for laser recording)
IT   2509-86-6 90936-88-2   90936-89-3   90955-58-1
     90955-59-2
     RL: USES (Uses)
        (photosensitive compns. containing, for laser recording)

L17  ANSWER 9 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1977:91752  CAPLUS
DN   86:91752
ED   Entered STN:  12 May 1984
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TI   Condensation products
IN   Ikeda, Tadashi; Iwamoto, Atsuo; Shishido, Tadao; Adachi, Keiichi; Fuseya,
     Yoshiharu
PA   Fuji Photo Film Co., Ltd., Japan
SO   Ger. Offen., 70 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
IC   C07D417-00
CC   40-7 (Dyes, Fluorescent Whitening Agents, and Photosensitizers)
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   DE 2617345           A1    19761104    DE 1976-2617345        19760421
     JP 51123223          A     19761027    JP 1975-48435          19750421
     GB 1541936           A     19790314    GB 1976-16225          19760421
PRAI JP 1975-48435        A     19750421
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
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 DE 2617345       IC     C07D417-00
                  IPCI   C07D0417-00; C07D0413-02; C07D0413-00 [C*]; G03C0001-14
                  IPCR   G03C0007-00 [I,C*]; G03C0007-00 [I,A]; C07D0215-00
                         [I,C*]; C07D0215-14 [I,A]; C07D0215-36 [I,A];
                         C07D0215-38 [I,A]; C07D0235-00 [I,C*]; C07D0235-28
                         [I,A]; C07D0263-00 [I,C*]; C07D0263-56 [I,A];
                         C07D0263-58 [I,A]; C07D0277-00 [I,C*]; C07D0277-10
                         [I,A]; C07D0277-36 [I,A]; C07D0277-64 [I,A];
                         C07D0277-66 [I,A]; C07D0277-74 [I,A]; C07D0277-84
                         [I,A]; C09B0023-00 [I,C*]; C09B0023-00 [I,A];
                         C09B0023-01 [I,A]; C09B0023-14 [I,A]; C09B0023-16
                         [I,A]; G03C0001-12 [I,C*]; G03C0001-12 [I,A];
                         G03C0001-22 [N,A]; G03C0001-40 [I,C*]; G03C0001-40
                         [I,A]; G03C0007-305 [I,C*]; G03C0007-305 [I,A]
 JP 51123223      IPCI   C09B0023-00; G03C0005-30; G03C0001-06
                  IPCR   G03C0007-00 [I,C*]; G03C0007-00 [I,A]; C07D0215-00
                         [I,C*]; C07D0215-14 [I,A]; C07D0215-36 [I,A];
                         C07D0215-38 [I,A]; C07D0235-00 [I,C*]; C07D0235-28
                         [I,A]; C07D0263-00 [I,C*]; C07D0263-56 [I,A];
                         C07D0263-58 [I,A]; C07D0277-00 [I,C*]; C07D0277-10
                         [I,A]; C07D0277-36 [I,A]; C07D0277-64 [I,A];
                         C07D0277-66 [I,A]; C07D0277-74 [I,A]; C07D0277-84
                         [I,A]; C09B0023-00 [I,C*]; C09B0023-00 [I,A];
                         C09B0023-01 [I,A]; C09B0023-14 [I,A]; C09B0023-16
                         [I,A]; G03C0001-12 [I,C*]; G03C0001-12 [I,A];
                         G03C0001-22 [N,A]; G03C0001-40 [I,C*]; G03C0001-40
                         [I,A]; G03C0007-305 [I,C*]; G03C0007-305 [I,A]
 GB 1541936       IPCI   C07D0277-62; C07D0215-12; C07D0215-00 [C*];
                         C07D0235-06; C07D0235-00 [C*]; C07D0263-56; C07D0263-00
                         [C*]; C07D0277-10; C07D0277-84; C07D0277-00 [C*];
                         C07D0413-06; C07D0413-00 [C*]; C09B0023-04;
                         C09B0023-06; C09B0023-08; C09B0023-10; C09B0023-16;
                         C09B0023-00 [C*]; C07D0233-96; C07D0233-00 [C*]
                  IPCR   G03C0007-00 [I,C*]; G03C0007-00 [I,A]; C07D0215-00
                         [I,C*]; C07D0215-14 [I,A]; C07D0215-36 [I,A];
                         C07D0215-38 [I,A]; C07D0235-00 [I,C*]; C07D0235-28
                         [I,A]; C07D0263-00 [I,C*]; C07D0263-56 [I,A];
                         C07D0263-58 [I,A]; C07D0277-00 [I,C*]; C07D0277-10
                         [I,A]; C07D0277-36 [I,A]; C07D0277-64 [I,A];
                         C07D0277-66 [I,A]; C07D0277-74 [I,A]; C07D0277-84
                         [I,A]; C09B0023-00 [I,C*]; C09B0023-00 [I,A];
                         C09B0023-01 [I,A]; C09B0023-14 [I,A]; C09B0023-16
                         [I,A]; G03C0001-12 [I,C*]; G03C0001-12 [I,A];
                         G03C0001-22 [N,A]; G03C0001-40 [I,C*]; G03C0001-40
                         [I,A]; G03C0007-305 [I,C*]; G03C0007-305 [I,A]
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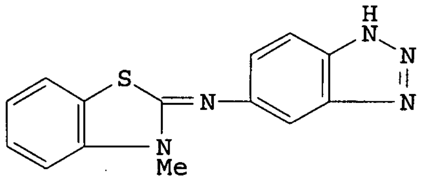
GI



I

AB Cyanine dyes and related compds. were prepared in high yield and purity by dethiolation of a [(sulfoalkyl)thio]heterocyclic onium hydroxide with a compound containing an active amino, methylene, or methyl group. For example, a mixture of 3-methylbenzothiazole-2-thione [2254-94-6] and propanesultone [1120-71-4] was heated to give anhydrous 3-methyl-2-[(3-sulfopropyl)thio]benzothiazolium hydroxide [61680-83-9] which when condensed with 5-aminobenzotriazole dihydrochloride [3663-27-2] gave 80% I [61681-34-3].

ST cyanine dye dethiolation condensation; diazacyanine dethiolation condensation; merocyanine dethiolation condensation; sulfoalkylthio cyanine dye prepn

IT Dyes, cyanine
(from [(sulfoalkyl)thio]heterocyclic onium hydroxide derivs. and compds. containing active amino, methylene and Me groups)

IT 61680-83-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction with aminobenzotriazole)

IT 17732-48-8P 18056-77-4P 25324-08-7P 27934-50-5P 53014-03-2P
61680-82-8P 61680-84-0P 61680-85-1P 61680-86-2P 61680-88-4P
61680-90-8P 61680-92-0P 61680-93-1P 61680-95-3P 61681-06-9P
61681-10-5P 61681-11-6P 61681-12-7P 61681-13-8P 61681-14-9P
61681-15-0P 61681-16-1P 61681-17-2P 61681-18-3P 61681-19-4P
61681-20-7P 61681-21-8P 61681-22-9P 61681-25-2P 61681-26-3P
61681-27-4P 61681-28-5P 61681-29-6P 61681-30-9P
61681-31-0P 61681-32-1P 61681-33-2P
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of)

IT 61680-99-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with (carboxymethyl)rhodanine)

IT 61681-24-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with Et cyanoacetate)

IT 5718-83-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with [(sulfopropyl)thio]heterocyclic onium derivs.)

IT 35843-32-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with [(sulfopropyl)thio]imidazolium hydroxide inner salt)

IT 62-53-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with [[(sulfopropyl)thio]butenyl]naphthothiazolium hydroxide derivative)

IT 61680-90-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aniline)

IT 61680-89-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromoethanesulfonic acid)

IT 61680-97-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloro(carboxyethyl)methylbenzothiazolium bromide)

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IT   61681-23-0
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with diethyl[(ethylbenzothiazolinylidene)methylethylidene
        ]thiobarbituric acid)
IT   61680-81-7
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with diethylmethylbenzimidazolium iodide derivative)
IT   109-77-3   61681-09-2
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with ethyl[(sulfobutyl)thio]benzothiazolium hydroxide)
IT   105-56-6
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with ethyl[(sulfobutylthio)styryl]benzothiazolium
        hydroxide)
IT   24351-12-0
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with ethyl[(sulfopropyl)thio]naphthothiazolium hydroxide
        inner salt)
IT   26978-65-4
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with ethylmethylthiobenzothiazolone)
IT   1120-71-4
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with heterocyclic thione derivs.)
IT   493-57-2
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with methyl[(sulfobutyl)thio]quinolinium hydroxide)
IT   3663-27-2
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with methyl[(sulfopropyl)thio]benzothiazolium hydroxide)
IT   61681-02-5
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with methyl[(sulfopropylthio)butenyl]thiazolinium
        hydroxide inner salt)
IT   61681-04-7
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with phenylthioxazolidinedione)
IT   149-30-4   2254-94-6   33682-78-9   40888-01-5   61680-87-3   61680-91-9
     61680-94-2
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with propanesultone)
IT   61681-01-4
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with rhodanine derivative)
IT   61681-07-0
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with thionaphthoquinone hydrazone)
IT   60760-38-5   61680-98-6   61681-00-3   61681-03-6   61681-05-8
     61681-08-1   61681-34-3
     RL: PRP (Properties)
        (spectrum of)

L17  ANSWER 10 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1969:20964  CAPLUS
DN   70:20964
ED   Entered STN:  12 May 1984
TI   Optical and electrical phenomena of monomolecular films of dyes
AU   Barth, P.; Beck, K. H.; Drexhage, K. H.; Kuhn, Hans; Moebius, D.; Molzahn,
     D.; Roellig, K.; Schaefer, F. P.; Sperling, W.; Zwick, M. M.
CS   Univ. Marburg, Marburg, Germany
SO   Opt. Anregung Org. Syst., Int. Farbensymp., 2nd, Schloss Elmau, Ger.
     (1966), Meeting Date 1964, 639-65.  Editor(s): Jung, W. Publisher: Verlag
     Chemie GmbH, Weinheim, Ger.
     CODEN: 18DVAJ
DT   Conference
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LA   German
CC   40 (Dyes, Fluorescent Brightening Agents, and Photosensitizers)
AB   Successive monomol. layers of Ba arachidate were used to sep. monomol.
     films of methine dyes by specific distances (each arachidate layer =
     27A.).  Energy transfer between sensitizers and acceptors was determined as a
     function of layer separation for a variety of systems using both fluorescent
     and nonfluorescent dyes.  Energy transfer was also observed between dye
     films and thin metal- or semiconductor layers.  Photocond. of the films
     and the formation of condensers from metal layers separated by arachidate
     layers was studied.  (See P. A. Thiessen, CA 34, 57123.  The use of
     monomol. films is discussed.
ST   optical property dye; elec property dye; dye elec property; arachidate
     layers dye
IT   Energy transfer
        (between acceptors and sensitizers in photography)
IT   Photographic sensitizers
        (cyanine dyes, energy transfer between acceptors and)
IT   905-96-4   14806-50-9
     RL: USES (Uses)
        (as photographic acceptor, energy transfer between sensitizer and)
IT   20196-06-9
     RL: USES (Uses)
        (as photographic sensitizer, energy transfer between acceptors and)
IT   2636-14-8
     RL: USES (Uses)
        (monomol. films of methine dyes in photography separated by layers of)
IT   21355-54-4
     RL: PRP (Properties)
        (spectrum of, visible)

L17  ANSWER 11 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1965:439594  CAPLUS
DN   63:39594
OREF 63:7151c-h,7152a
ED   Entered STN:  22 Apr 2001
TI   Holopolar cyanine dyes
IN   Brooker, Leslie G. S.; Webster, Frank G.
PA   Eastman Kodak Co.
SO   27 pp.
DT   Patent
LA   Unavailable
IC   C09B
CC   46 (Dyes)
FAN.CNT 1
     PATENT NO.          KIND   DATE         APPLICATION NO.        DATE
     ---------------     ----   --------     --------------------   --------
PI   GB 988627                  19650407     GB 1961-31756          19610904
     US 3194805                 19650713     US 1960-53698          19600902
     US 3253925                 19660531     US 1965-450598         19650423
PRAI US                         19600902
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
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 GB 988627        IC     C09B
                  IPCI   C09B
                  IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-10
                         [I,A]; G03C0001-12 [I,A]; G03C0001-12 [I,C*];
                         G03C0001-22 [I,A]
 US 3194805       IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-10
                         [I,A]; G03C0001-12 [I,A]; G03C0001-12 [I,C*];
                         G03C0001-22 [I,A]
                  NCL    544/300.000; 430/577.000; 544/304.000; 546/173.000;
                         548/120.000; 548/121.000; 548/150.000; 548/152.000;
                         548/156.000; 548/157.000; 548/159.000; 548/217.000;
                         548/219.000; 548/224.000; 548/305.100; 548/306.100;
                         548/312.100; 548/364.700; 548/455.000; 558/373.000;
                         558/374.000; 558/426.000
 US 3253925      IPCR    C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-10
                         [I,A]; G03C0001-12 [I,A]; G03C0001-12 [I,C*];
                         G03C0001-22 [I,A]
                 NCL     430/578.000; 430/591.000; 430/594.000
GI   For diagram(s), see printed CA Issue.
AB   Merocyaninelike dyes of structure I and holopolar cyanine dyes
     (CA 55, 6220b) of structure of II are described.  The dyes are useful
     photog. sensitizers.  A mixture of 19.8 g. 2-indanone, 11 g. CH2(CN)2, 2.5
     g. NH4OAc, 4 mL. HOAc, and 100 mL. CHCl3 was refluxed 30 min., evaporated to
     dryness, and the residue washed with H2O and MeOH to give 73%
     2-(dicyanomethylene)indan (III), m. 190-3°.  Similarly prepared were
     (compound, m.p., and % yield given): 1-(dicyanomethylene)indan,
     147-8°, 65; 1,3diethyl-5-(2-indanylidene)barbituric acid,
     165-7°, 47; 1-(dicyanomethylene)-1,2,3,4-tetrahydronaphthalene,
     107-8°, 48; 2-(dicyanomethylene)-1,2,3,4-tetrahydronaphthalene,
     102-3°, 22; 4-(2-indanylidene)-3-phenylisoxazolin-5-one,
     144-5°, 17; 4-(2-indanylidene)-1-phenyl-5-pyrazolone,
     273-4°, 71; 3-ethyl-5-(1-indanylidene)rhodanine, 164-6°, 22.
     A mixture of III 5.4, 2-(acetanilidovinyl)-3-ethylbenzothiazolium iodide
     (IV) 13.5, Et3N 3.3 g., and 50 mL. EtOH was refluxed 15 min. and cooled.
     The precipitate was extracted with hot MeOH and recrystd. from pyridine-MeOH
to give
     21% I [X = S, Y = C(CN)2, R = Et, R' = H, n = 0, m = p = 1] (V),m.
     246-50° (decomposition).  A mixture of V 1.98, IV 2.25, Et3N 0.6 g., and
     15 mL. pyridine was refluxed 10 min. and cooled.  The precipitate was
extracted with
     two 350-mL. portions of hot pyridine to give 33% II [X = Z = S, Y =
     C(CN)2, R = R' = Et, p = q = 1], m. 288-9°, sensitivity maximum 690
     mμ, sensitivity limit 780 mμ.  Similarly prepared I and II are
     tabulated.  Formula,X,Y,Z,R,R1,Ar,Ar1,n,m,p,q,%yield,m.p.(decomposition),sensit
     ivity maximum(mμ),sensitivity limit(mμ);I,S,C(CN)2, ,Me, , , ,1,0,0,
     ,35,245-6°,545,565;I,S,C(CN)2, ,Et,H, , ,1,0,1, ,
     ,259-60°,660,680;I,S,C(CN)2, ,Et,H, , ,1,0,2, ,36,240-1°, ,
     ;I,O,C(CN)2, ,Me, , , ,1,0,0, ,28,230-1°,490,510;I,S,C(CN)2, ,Me,
     ,benzo, ,1,0,0, ,55,265-7°,550,575;I,CH:CH:,C(CN)2, ,Et, , ,
     ,1,0,0, ,19,227-8°, , ;I,S,C(CN)2, ,Et,Me,benzo, ,1,0,1,
     ,1,191-3°, , ;I,S,C(CN)2, ,Et, , , ,0,1,0, ,46,256-8°, ,
     ;I,S,C(CN)2,Et,H, , ,0,1,2, ,22,228-30°, , ;I,O,C(CN)2, ,Et,H, ,
     ,0,1,1, ,28,214-15°, , ;I,S,A, ,Me, , , ,0,1,0, ,12,272-3°,
     , ;I,S,C(CN)2, ,Me, , , ,2,0,0, ,76,232-3°, ,555;I,S,C(CN)2, ,Me,
     ,benzo, ,2,0,0, ,80,289-90°,555,580;  I,CH:CH,C(CN)2, ,Et, , ,
     ,2,0,0, ,33,285-6°, , ;I,O,C(CN)2, ,Et,H, , ,2,0,1,
     ,19,213-14°,600,690;I,S,C(CN)2, ,Me,H, , ,2,0,1,
     ,5,231-2°,580,690;I,O,B, ,Et,H, , ,1,0,1, ,4,192-7°, ,
     ;I,S,B, ,Et,H,benzo, ,1,0,1, ,8,169-70°, , ;I,S,C(CM)2, ,Et, , ,
     ,1,1,0, ,54,254-6°, , ;I,S,C(CN)2, ,Et, ,benzo, ,1,1,0,
     ,4,222-5°, , ;I,S,C(CN)2, ,Et,H, , ,1,1,1, ,8,218-25°, ,
     ;II,S,C(CN)2,S,Et,Et, , , , ,2,2,13,237-8°,630,690;
     II,S,C(CN)2,S,Et,Et, , , , ,1,2,35,244-5°,810,840;
     II,O,C(CN)2,S,Et,Et, , , , ,1,1,45,255-6°,685,730;II,S,A,S,Me,Et, ,
     , , ,0,2,27,285-6°,730,810;II,S,A,S,Me,Me, , , ,
     ,0,0,28,>310°, , ;II,S,A,S,Et,Et, , , ,
     ,1,1,61,>310°,750,770;II,O,A,O,Et,Et, , , , ,1,1,41,280-
     1°,680,720;II,S,A,S,Me,Me,benzo,benzo, , ,0,0,62,241-
     3°,590,620;II,S,C(CN)2,S,Me,Me, , , , ,0,0,32,>310,565,610;
     II,S,A,S,Me,Me, ,benzo, , ,0,0,54,231-2°,555,575;
IT   Photography
        (sensitizers, holopolar cyanine dyes as)
IT   Barbituric acid, 5-[1,3-bis(3-methyl-2-benzothiazolinylidene)-2-
        indanylidene]-1,3-diethyl-
     RL: PREP (Preparation)
IT   2520-18-5   2573-44-6   94963-87-8   95169-26-9
        (Derived from data in the 7th Collective Formula Index (1962-1966))
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IT   233-74-9, Naphtho[1,2-d]thiazole
        (derivs., dyes)
IT   2256-48-6P, Δ2,α-Indanmalononitrile,
     1,3-bis[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-   2509-33-3P,
     Δ1,α-Indanmalononitrile, 2-(3-methyl-2-benzoxazolinylidene)-
     2509-69-5P, Δ1,α-Indanmalononitrile, 2-(1-methylnaphtho[1,2-
     d]thiazolin-2-ylidene)-   2509-70-8P, Δ1,α-Indanmalononitrile,
     2-(1-ethyl-2(1H)-quinolylidene)-   2509-71-9P, Δ2,α-
     Indanmalononitrile, 1-(3-ethyl-2-benzothiazolinylidene)-   2509-72-0P,
     Δ2,α-Indanmalononitrile, 1-[4-(3-ethyl-2-
     benzothiazolinylidene)-2-butenylidene]-   2509-73-1P, Δ2,α-
     Indanmalononitrile, 1-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-
     2509-74-2P, Barbituric acid, 1,3-diethyl-5-[1-(3-methyl-2-
     benzothiazolinylidene)-2-indanylidene]-   2509-75-3P, Δ1(2H),α-
     Naphthalenemalononitrile, 3,4-dihydro-2-(3-methyl-2-benzothiazolinylidene)-
        2509-76-4P, Δ1(2H),α-Naphthalenemalononitrile,
     3,4-dihydro-2-(1-methylnaphtho[1,2-d]thiazolin-2-ylidene)-   2509-77-5P,
     Δ1(2H),α-Naphthalenemalononitrile, 2-(1-ethyl-2(1H)-
     quinolylidene)-3,4-dihydro-   2509-78-6P, Δ1(2H),α-
     Naphthalenemalononitrile, 2-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-
     3,4-dihydro-   2509-79-7P, Δ1(2H),α-Naphthalenemalononitrile,
     3,4-dihydro-2-[2-(3-methyl-2-benzothiazolinylidene)ethylidene]-
     2509-80-0P, Rhodanine, 3-ethyl-5-[2-[2-(3-ethyl-2-
     benzoxazolinylidene)ethylidene]-1-indanylidene]-   2509-81-1P, Rhodanine,
     3-ethyl-5-[2-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)ethylidene]-1-
     indanylidene]-   2509-82-2P, Δ2(1H),α-
     Naphthalenemalononitrile, 3-(3-ethyl-2-benzothiazolinylidene)-3,4-dihydro-
     2509-83-3P, Δ2(1H),α-Naphthalenemalononitrile,
     3-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-3,4-dihydro-   2509-84-4P,
     Δ2(1H),α-Naphthalenemalononitrile, 3-[2-(3-ethyl-2-
     benzothiazolinylidene)ethylidene]-3,4-dihydro- 2509-85-5P,
     Δ2,α-Indanmalononitrile, 1,3-bis[4-(3-ethyl-2-
     benzothiazolinylidene)-2-butenylidene]- 2509-86-6P,
     Δ2,α-Indanmalononitrile, 1-[4-(3-ethyl-2-
     benzothiazolinylidene)-2-butenylidene]-3-[2-(3-ethyl-2-
     benzothiazolinylidene)ethylidene]-   2509-87-7P, Barbituric acid,
     1,3-diethyl-5-[1-[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-3-(3-
     methyl-2-benzothiazolinylidene)-2-indanylidene]-   2509-88-8P, Barbituric
     acid, 5-[1,3-bis[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-2-
     indanylidene]-1,3-diethyl-   2509-89-9P, Δ2,α-
     Indanmalononitrile, 1,3-bis(3-methyl-2-benzothiazolinylidene)-
     2509-90-2P, Barbituric acid, 1,3-diethyl-5-[1-(3-methyl-2-
     benzothiazolinylidene)-3-(1-methylnaphtho[1,2-d]-thiazolin-2-ylidene)-2-
     indanylidene]-   2509-91-3P, o-Anisanilide, 3'-(2-benzothiazolyl)-4'-
     hydroxy-   2510-00-1P, Δ2,α-Indanmalononitrile   2510-01-2P,
     Δ1,α-Indanmalononitrile   2510-02-3P, Barbituric acid,
     1,3-diethyl-5-(2-indanylidene)-   2510-03-4P, Δ1(2H),α-
     Naphthalenemalononitrile, 3,4-dihydro-   2510-04-5P, Δ2(1H),α-
     Naphthalenemalononitrile, 3,4-dihydro-   2510-05-6P, 2-Pyrazolin-5-one,
     4-(2-indanylidene)-1-phenyl-   2510-06-7P, Rhodanine, 3-ethyl-5-(1-
     indanylidene)-   2510-07-8P, Δ2,α-Indanmalononitrile,
     1-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-   2510-08-9P,
     Δ1,α-Indanmalononitrile, 2-(3-methyl-2-benzothiazolinylidene)-
     2510-09-0P, Δ1,α-Indanmalononitrile, 2-[2-(3-ethyl-2-
     benzothiazolinylidene)ethylidene]-   2533-12-2P, Hexananilide,
     3'-(2-benzothiazolyl)-4'-hydroxy-   2533-13-3P, Acetanilide,
     3'-(2-benzothiazolyl)-4'-hydroxy-2-phenyl-   2533-14-4P, Benzanilide,
     3'-(2-benzothiazolyl)-4'-hydroxy   2573-26-4P, p-Anisanilide,
     3'-(2-benzothiazolyl)-4'-hydroxy-   2573-42-4P, Δ1,α-
     Indanmalononitrile, 2-[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-
        2573-43-5P, Δ1,α-Indanmalononitrile, 2-[2-(1-
     ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-methylethylidene]-   2573-45-7P,
     Barbituric acid, 5-[1,3-bis[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-2-
     indanylidene]-1,3-diethyl-   2573-46-8P, Barbituric acid,
     5-[1,3-bis(1-methylnaphtho[1,2-d]thiazolin-2-ylidene)-2-indanylidene-1,3-
     diethyl-   2574-27-8P, 2-Isoxazolin-5-one, 4-(2-indanylidene)-3-phenyl-
     2746-82-9P, Δ2,α-Indanmalononitrile,
     1-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-3-[2-(3-ethyl-2-
     benzoxazolinylidene)ethylidene]-   2842-13-9P, Acetanilide,
     3'-(2-benzothiazolyl)-4'-hydroxy-   31093-80-8P, Naphthanilide,
     3'-(2-benzothiazolyl)-4'-hydroxy-
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 12 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1963:455699  CAPLUS
DN   59:55699
OREF 59:10280a-f
ED   Entered STN:  22 Apr 2001
TI   Photographic supersensitizers
IN   Jones, Jean E.
PA   Kodak Ltd.
SO   14 pp.
DT   Patent
LA   Unavailable
CC   46 (Dyes)
     PATENT NO.             KIND  DATE          APPLICATION NO.         DATE
     ---------------        ----  --------      --------------------    --------
PI   GB 862443                    19610308      GB 1957-15055           19570513
PRAI US                           19560521
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 GB 862443       IPCR   C07D0207-00 [I,C*]; C07D0207-20 [I,A]; C09B0023-00
                        [I,C*]; C09B0023-01 [I,A]; C09B0023-02 [I,A];
                        G03C0001-08 [I,C*]; G03C0001-12 [I,A]; G03C0001-12
                        [I,C*]; G03C0001-28 [I,A]
AB   Polymethine dyes of the general formula A(:CHCH)n:-
     C(R)C(R'):C(CN)2, where R and R' = H, Et, or Ph, or R + R' represent
     (CH2)3-4, and A is the residue of a substituted heterocyclic compound, such
     as benzothiazoline, benzoxazoline, indoline, or benzoselenazoline, are
     combined with pyridine bases to give useful supersensitizers for
     photographic Ag halide emulsions. 2-(2-Acetanilidovinyl)-3-
     ethylbenzoxazolium iodide (17.36 g.), 13.2 g. CH2(CN)2, 50 cc.  EtOH, and
     8.08 g. Et3N refluxed 10 min., cooled, and filtered gave 95% (crude)
     2-(3.3-dicyano-allylidene)-3-ethylbenzoxazoline (I). yellow needles, m
     174-811° (MeOH) Similarly were prepared the following compds. (m.p.
     and starting material given): 3-ethylbenzothiazoline analog of I,
     207-8°, 2-(2-acetanilidovinyl)-3-ethylbenzathiazolium iodide (II):
     1-ethylnaphtho[1,2]thiazoline analog of I, 301-2°,
     2-(2-acetanilidovinyl)-1-ethylnaphtho[1,2] thiazolium iodide;
     3-ethyl-benzoselenazoline analog of I, 212-13°,
     2-(2-acetanilidovinyl)-3-ethylbenzoselenazolium iodide; 5-methoxy-
     1,3,3-trimethylindo-line analog of I, 228-9°, 2-(2-
     acetanilidovinyl)-1,3,3-trimethyl-5-methoxyindolium iodide.
     2-(4-Acetanilido-1,3-butadienyl)-1-ethylnaphtho[1,2]thiazolium iodide
     (5.26 g.) gave similarly 30% crude 2-(5,5-dicyano-2,4-pentadienylidene)-1-
     ethylnaphtho[1,2]-thiazoline (III), steel blue needles, m. 245 6°
     (decomposition) (repptd. from hot C5H5N with MeOH).  Similarly were prepared
the
     following compds. (same data given): 3-methylbenzothiazoline analog of
     III, 250-1° (decomposition), 2-(4-acetanilido-1,3-butadienyl)-3-
     methylbenzothiazolium iodide; 3-ethylbenzoxazoline analog of III,
     194-5° (decomposition), 2-(4-acetanilido-1,3-butadienyl)-3-
     ethylbenzoxazolium iodide. 2-Cyano-3-phenyl-2-butenonitrile with
     2-(2-acetanilidovinyl)-8-methylbenzothiazolium iodide gave similarly
     2-(5,5-dicyano-4-phenyl-2,4-pentadienylidene)-3-meth-ylbenzothiazoline
     (IV), m. 225-6° (decomposition), and with 2-(2-acetanilidovinyl)-1-
     methylnaphtho[1,2]thiazolium iodide the 1-methylnaphtho[1,2]thiazoline
     analog of IV, m 273-4° (decomposition). 3-Methyl-2-
     (methylthio)benzothiazolinm p-toluene-sulfonate (V) and
     (dicyanomethylene)cyclopentane (VI) refluxed 20 min. in absolute  EtOH with
     Et3N yielded 89% 1-(dicyanomethylene)-2-(3-methyl-2-
     benzothiazolinylidene)cyclo-pentane (VII), red crystals, m. 208-9°
     (decomposition) (EIOH) Similarly was prepared the 2-(8-ethyl-2-
     benzothiazolinylidene) analog of VII, 51%, red crystals, m. 226-7°
     (decomposition), from 3-ethyl-2-(ethylthio)benzothiazolium ethosulfate.
     2-(Methyl-thio)benzoxazole (8.25 g.) and 9.3 g. p-MeC6H4SO3Me heated over
     a free flame until bubbles appeared, cooled to room temperature refluxed 20
min.
     with 6.6 g. VI, 35 cc. absolute EtOH, and 5.05 g. Et3N, and worked up yielded
     34% 2-(3-methyl-2-benzoxazolin-ylidene) analog of VII, orange-yellow
     needles, m. 197-8° (MeOH) V with (dicyanomethylene)cyclohexane gave
     similarly 84% cyclohexane analog of VII scarlet needles, m. 220-1°
     (decomposition) (EtOH).  II with VI gave in the same ntanner 13% (crude)
     1-(dicyanomethylene)-2-[(3-ethyl-2-benzothiazolinylidene)ethyl-
     idene]cyclopentane, dark crystals with a green reflex, m. 2511-2°
     (decomposition) (C5H5N).
IT   Photography
        (sensitizers, polymethine-like compds. containing
        ω,ω-dicyano groups with pyridine as)
IT   57296-02-3P, Malononitrile, [2-(3-ethyl-2-benzothiazolinylidene)ethylidene
     ]- 61681-30-9P, Malononitrile, [2-(3-methyl-2-
     benzoxazolinylidene)cyclopentylidene]-   72861-62-2P, Malononitrile,
     [4-(3-methyl-2-benzothiazolinylidene)-1-phenyl-2-butenylidene]-
     88894-02-4P, Malononitrile, [2-(1-ethylnaphtho[1,2-d]thiazolin-2-
     ylidene)ethylidene]-   92432-66-1P, Malononitrile, [4-(3-methyl-2-
     benzothiazolinylidene)-2-butenylidene]-   92872-47-4P, Malononitrile,
     [4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]- 92872-48-5P
     , Malononitrile, [2-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-
     93332-88-8P, Malononitrile, [2-(3-ethyl-2-
     benzothiazolinylidene)cyclopentylidene]-   93717-82-9P, Malononitrile,
     [2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-   94327-88-5P,
     Malononitrile, [4-(3-ethyl-2-benzoxazolinylidene)-2-butenylidene]-
     94578-93-5P, Malononitrile, [4-(3-ethyl-2-benzoxazolinylidene)-1-(2-
     thienyl)-2-butenylidene]- 94622-44-3P, Malononitrile,
     [2-(3-methyl-2-benzothiazolinylidene)cyclohexylidene]-   94674-04-1P,
     Malononitrile, [4-(3-ethyl-2-benzoxazolinylidene)-1-methyl-2-butenylidene]-
        94932-45-3P, Malononitrile, [2-(5-methoxy-1,3,3-trimethyl-2-
     indolinylidene)ethylidene]-   96954-82-4P, Malononitrile,
     [2-(3-ethyl-2-benzoselenazolinylidene)ethylidene]- 98823-50-8P,
     Malononitrile, [2-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]cyclopent
     ylidene]-   99077-56-2P, Malononitrile, [4-(1-ethylnaphtho[1,2-d]thiazolin-
     2-ylidene)-2-butenylidene]-   103714-41-6P, Malononitrile,
     [4-(1-methylnaphtho[1,2-d]thiazolin-2-ylidene)-1-phenyl-2-butenylidene]-
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 13 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1962:401937  CAPLUS
DN   57:1937
OREF 57:332i,333a-h
ED   Entered STN:  22 Apr 2001
TI   Cyanines for color photography
PA   Kodak, Soc. Anon
DT   Patent
LA   Unavailable
CC   11 (Radiation Chemistry and Photochemistry)
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   BE 607696                  19600902    BE
     US 3128179                 19640407    US 1960-53689          19600902
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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US 3128179 IPCR G03G0005-04 [I,C*]; G03G0005-06 [I,A]; G03G0005-06
[I,C*]; G03G0005-09 [I,A]
NCL 430/093.000; 252/501.100

AB 1-Dicyanomethyleneindan (I), m. 147-8o (MeOH), was prepared in 65% yield as
grayish white crystals by refluxing 39.6 g. 1-indanone, 19.8 g.
malononitrile, 2.5 g. NH4OAc, 4 cc. AcOH, 40 cc. CHCl3, and simultaneous
distillation of 5.4 cc. H2O. 2-Dicyanomethyl- eneindan, m. 190-3, was prepared
in
73% yield (brownish), 1-dicyanomethylene-1,2,3,4-tetrahydronaphthalene
(colorless), m. 107-8 (EtOH), in 48% yield from 1-tetralone, and
2-dicyanomethylene-1,2,3,4-tetrahydronaphthalene (colorless), m. 102-3
(MeOH), in 22% yield. 1,3-Diethyl-5-(2indanylidene)barbituric acid
(colorless), m. 165-7 (EtOH) was prepared in 47% yield by refluxing for 2 h.
19 g. 2-indanone, 26.5 g. 1,3-diethylbarbituric acid, and 2.5 cc.
piperidine in 100 cc. EtOH. 1-Dicyanomethylene-2-(3methyl-2-
benzothiazolinylidene)indan (orange), m. 245-6 (decomposition) (pyridine/MeOH),
was prepared in 35% yield by refluxing for 15 min. 5.4 g. I, 7.4 g.
3-methyl-2-methylthiobenzothiazolium p-toluenesulfonate, 6.06 g. Et3N, 50
cc. EtOH; it sensitized Ag(Br,I) emulsions to 565 mμ, maximum 545 mμ.
Similarly were obtained (m.p., % yield, limit and absorption maximum in mμ
given): 1-dicyanomethylene-2-(3-ethyl2-benzothiazolinylideneethylidene)ind
an (green needles), 259-60 (decomposition), -, 680, 660; 1-dicyanomethylene-
2[(3 - Et - 2- benzothiazolinylidene) - 2- butenylidene]indan (dark
green), 240-1 (decomposition), 36, -, -; 1-dicyanomethylene- 2- (3- methyl-2-
benzoxazolinylidene)indan (brownish red ), 230-1 ( decomposition ), -, 510,
490; 1-dicyanomethylene2- ( 1 - methylnaphtho [ 1,2] thiazolin-2-
ylidene)indan (red), 265-7 (decomposition), 55, 575, 550; 1-dicyanomethylene-2-
(1ethyl-2(1H)-quinolylidene)indan, 227-8 (decomposition), 19, -,-;
1-dicyanomethylene-2-[(1-ethylnaphtho[1,2]thiazolin-2-
ylidene)isopropylidene]indan (dark), 191-3 (decomposition), 1, -, -;
2-dicyanomethylene-1-[(3-ethyl-2benzothiazolinylidene)ethylidene]indan
(II) (green), 246-50 (decomposition), 21, -, -;
2-dicyanomethylene-1-[(3ethyl-2-
benzothiazolinylidene)-2-butenylidene]indan (dark green), 228-30, 22, -,
-; 2-dicyanomethylene-1-[(3ethyl-2-benzoxazolinylidene)ethylidene]indan
(green), 2145 (decomposition), 28, -, -; 2-dicyanomethylene-1,3-bis(3methyl-2-
benzothiazolinylidene )indan (dark needles), <310, 32, 610, 565;
2-dicyanomethylene-1,3-bis[(3-ethyl2-benzothiazollnylidene)ethylidene]inda
n (dark green), 2889, 33, 780, 690; 2-dicyanomethylene-1,3-bis[(3-ethyl-
2benzothiazolinylidene)-2-butenylidene]indan (dark), 2378 (decomposition), 13,
690, 630; 2-dicyanomethylene-1-[(3ethyl-2-benzothiazolinylidene )-2-
butenylidene] - 3- [( 3- ethy-2-benzothiazolinylidene)ethylidene]indan
(black), 244-5 (decomposition), 35, 840, 810; 2-dicyanomethylene-1-[(3-ethyl2-
benzothiazolinylidene)ethylidene]-3- [(3-ethyl-2-
benzoxazolinylidene)ethylidene]indan (gray), 255-6° (decomposition),
45,730,685; 1,3-diethyl-5-[1-(3-methyl-2-benzothiazolinylidene)indan-2-
ylidene] barbituric acid (brownish red), 272-3 (decomposition) (pyridine), 12,
-, -; 1,3-diethyl-5-[1,3-bis(3-methyl- 2- benzothiazolinylidene)indan-2-
ylidene] barbituric acid (red), <310, 28, -, -; 1,3-diethyl-5-[1,3-
bis(3ethyl - 2 - benzothiazolinylideneethylidene)indan - 2 - ylidene]
barbituric acid (green), <310, 61, 770, 750; corresponding
benzoxazolinylidene derivative (green), 280-1 (decomposition), 41, 720, 680;
1,3-diethyl-5-[1,3-bis(methylnaphtho [ 1,2] thiazolin-2-ylidene
)indan-2-ylidene] barbituric acid (dark), 242-3, 62, 620, 590;
1,3-diethyl-5-[1-(3-ethyl-2benzothiazolinylidene)-2-butadienylidene]
-3-(3-methyl-2- benzothiazolinylidene )indan-2-ylidene] barbituric acid
(green), 285-43 (decomposition), 27, 810, 730; 1,3-diethyl-5-[1- (3 - methyl-
2- benzothiazolinylidene)- 3- ( 1 -methylnaphtho-
[1,2]thiazolinylidene)indan-2-ylidene]barbituric acid (red), 231-2
(decomposition), 54, 575, 555; 1-dicyanomethylene- 1,2,3,4- tetrahydro- 2-
(3-methyl- 2- benzothiazolinylidene)- naphthalene (red), 232-3 (decomposition),
76, 555, -; 1-di- cyanomethylene- 1,2,3,4- tetrahydro-2- (1-methylnaphtho-
[1,2]thiazolin-2-ylidene)naphthalene (brownish red), 289- 90 (decomposition),
80, 580, 555; 1-dicyanomethylene-2-(1- ethyl-2(1H)-quinolylidene)-
1,2,3,4-tetrahydronaphthalene (red), 285-6 (decomposition), 33, -, -;

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      1-dicyanomethylene- 2-[(3-ethyl-2-benzoxazolinylidene)ethylidene]-
      1,2,3,4-tetra- hydronaphthalene (green needles), 213-14 (decomposition), 19,
      690, 600; and 1-dicyanomethylene-1,2,3,4-tetrahydro- 2 - [(3 - methyl- 2 -
      benzothiazolinylidene)ethylidene] naphtha- lene (green needles), 231-2 (
      decomposition ), 5, 690, 580.
IT    Spectra, visible and ultraviolet
         (of cyanine dyes, for photog. color sensitization)
IT    Photography, color
         (sensitizers, cyanine dyes as)
IT    Barbituric acid, 5-[1,3-bis(3-methyl-2-benzothiazolinylidene)-2-
         indanylidene]-1,3-diethyl-
      RL: PREP (Preparation)
IT    2510-00-1   2510-01-2   2573-44-6   101058-24-6
         (Derived from data in the 7th Collective Formula Index (1962-1966))
IT    4735-28-8, Naphtho[1,2-d]thiazoline
         (derivs.)
IT    2256-48-6P, Δ2,α-Indanmalononitrile,
      1,3-bis[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-   2509-33-3P,
      Δ1,α-Indanmalononitrile, 2-(3-methyl-2-benzoxazolinylidene)-
      2509-69-5P, Δ1,α-Indanmalononitrile, 2-(1-methylnaphtho[1,2-
      d]thiazolin-2-ylidene)-   2509-70-8P, Δ1,α-Indanmalononitrile,
      2-(1-ethyl-2(1H)-quinolylidene)-   2509-72-0P, Δ2,α-
      Indanmalononitrile, 1-[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-
         2509-73-1P, Δ2,α-Indanmalononitrile, 1-[2-(3-ethyl-2-
      benzoxazolinylidene)ethylidene]-   2509-74-2P, Barbituric acid,
      1,3-diethyl-5-[1-(3-methyl-2-benzothiazolinylidene)-2-indanylidene]-
      2509-75-3P, Δ1(2H),α-Naphthalenemalononitrile,
      3,4-dihydro-2-(3-methyl-2-benzothiazolinylidene)-   2509-76-4P,
      Δ1(2H),α-Naphthalenemalononitrile, 3,4-dihydro-2-(1-
      methylnaphtho[1,2-d]thiazolin-2-ylidene)-   2509-77-5P,
      Δ1(2H),α-Naphthalenemalononitrile, 2-(1-ethyl-2(1H)-
      quinolylidene)-3,4-dihydro-   2509-78-6P, Δ1(2H),α-
      Naphthalenemalononitrile, 2-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-
      3,4-dihydro-   2509-79-7P, Δ1(2H),α-Naphthalenemalononitrile,
      3,4-dihydro-2-[2-(3-methyl-2-benzothiazolinylidene)ethylidene]-
      2509-85-5P, Δ2,α-Indanmalononitrile,
      1,3-bis[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-
      2509-86-6P, Δ2,α-Indanmalononitrile,
      1-[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-3-[2-(3-ethyl-2-
      benzothiazolinylidene)ethylidene]-   2509-87-7P, Barbituric acid,
      1,3-diethyl-5-[1-[4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-3-(3-
      methyl-2-benzothiazolinylidene)-2-indanylidene]-   2509-88-8P, Barbituric
      acid, 5-[1,3-bis[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-2-
      indanylidene]-1,3-diethyl-   2509-89-9P, Δ2,α-
      Indanmalononitrile, 1,3-bis(3-methyl-2-benzothiazolinylidene)-
      2509-90-2P, Barbituric acid, 1,3-diethyl-5-[1-(3-methyl-2-
      benzothiazolinylidene)-3-(1-methylnaphtho[1,2-d]-thiazolin-2-ylidene)-2-
      indanylidene]-   2510-02-3P, Barbituric acid, 1,3-diethyl-5-(2-
      indanylidene)-   2510-03-4P, Δ1(2H),α-
      Naphthalenemalononitrile, 3,4-dihydro-   2510-04-5P, Δ2(1H),α-
      Naphthalenemalononitrile, 3,4-dihydro-   2510-07-8P, Δ2,α-
      Indanmalononitrile, 1-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-
      2510-08-9P, Δ1,α-Indanmalononitrile, 2-(3-methyl-2-
      benzothiazolinylidene)-   2510-09-0P, Δ1,α-Indanmalononitrile,
      2-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-   2573-42-4P,
      Δ1,α-Indanmalononitrile, 2-[4-(3-ethyl-2-
      benzothiazolinylidene)-2-butenylidene]-   2573-43-5P, Δ1,α-
      Indanmalononitrile, 2-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-
      methylethylidene]-   2573-45-7P, Barbituric acid, 5-[1,3-bis[2-(3-ethyl-2-
      benzoxazolinylidene)ethylidene]-2-indanylidene]-1,3-diethyl-   2573-46-8P,
      Barbituric acid, 5-[1,3-bis(1-methylnaphtho[1,2-d]thiazolin-2-ylidene)-2-
      indanylidene-1,3-diethyl- 2746-82-9P, Δ2,α-
      Indanmalononitrile, 1-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-3-[2-
      (3-ethyl-2-benzoxazolinylidene)ethylidene]-
      RL: PREP (Preparation)
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     (preparation of)

L17  ANSWER 14 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1961:31921  CAPLUS
DN   55:31921
OREF 55:6220b-i,6221a-b
ED   Entered STN:  22 Apr 2001
TI   Holopolar cyanine dyes
IN   Brooker, Leslie G. S.; White, Frank L.
PA   Eastman Kodak Co.
DT   Patent
LA   Unavailable
CC   5 (Photography)
FAN.CNT 1
     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
PI   US 2955939                 19601011   US 1956-609525         19560913
     GB 862445                             GB
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 2955939      IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-10
                        [I,A]; C09B0023-12 [I,A]; G03C0001-12 [I,A];
                        G03C0001-12 [I,C*]; G03C0001-22 [I,A]
                 NCL    430/578.000; 430/581.000; 544/300.000; 548/100.000;
                        548/120.000; 548/121.000; 548/150.000; 548/156.000;
                        548/183.000; 548/219.000; 548/235.000
GI   For diagram(s), see printed CA Issue.
AB   New holopolar cyanine dyes, useful as sensitizers in
     photographic Ag halide emulsions, have been prepared and have the general
     formula Z.N(R).(CH:CH)n-1.C(:CHCH)d-1:C.C(X):C(Y).D, where X is
     C(R''):C:N- or C:C(O-).Q, Y is (CH:CH)q-1C(:CHCH)m-1:N+(R').Z', R and R'
     are substituted or unsubstituted alkyl groups, R'' is a cyano or
     alkoxycarbonyl group, d,m,n, and q are 1 or 2, D represents the atoms
     necessary to complete a cyclopentene or cyclohexene ring, Q represents the
     atoms necessary to complete a nucleus of the pyrazole, isoxazolone,
     2,4,6-trioxohexahydropyrimidine, rhodanine, 2-thio-2,4-oxazolidinedione,
     or 2-thiohydantoin series, Z and Z' are the atoms necessary to complete a
     nucleus from the thiazole, benzothiazole, naphthothiazole, benzoxazole,
     naphthoxazole, benzoselenazole, naphthoselenazole, 2-quinoline, and
     4-quinoline series.  A mixture of 4.61 g. 1,3-diethyl-5-[2-(1-
     ethylnaphtho[1,2]thiazolin-2-ylidene)cyclopentylidene]barbituric acid,
     7.98 g. 1-ethyl-2-ethylthionaphtho[1,2]thiazolium ethosulfate, 30 ml. dry
     pyridine, and 2.02 g. Et3N was refluxed 30 min., cooled, stirred with H2O,
     and filtered.  The solid was recrystd. from MeOH, extracted with EtOH, and
     recrystd. twice from pyridine to give 21% 1,3-diethyl-5-[2,5-bis(1-
     ethylnaphtho[1,2]thiazolin-2-ylidene)cyclopentylidene]barbituric acid, m.
     242-3° (decompose), which sensitized a Ag(Br, I) emulsion from
     530-740 mμ with maximum sensitivity at 700 mμ.  Similarly, new dyes
     were prepared (dye, m.p., sensitivity range, and maximum in mμ given):
     1,3-diethyl-5-[2,5-bis(1-ethyl-naphtho[1,2]thiazolin-2-
     ylidene)cyclopentylidene]-2-thiobarbituric acid, 244-5° (decompose,
     pyridine-MeOH), -, 700; 3-ethyl-5-[2,5-bis(3-methyl-2-
     benzothiazolinylidene)cyclopentylidene]rhodanine, 286-7° (decompose,
     pyridine), -, -; 1,3-diethyl-5-[2,5-bis(3-methyl-2-
     benzothiazolinylidene)cyclopentylidene]barbituric acid (I), 298-9°
     (decompose, EtOH), 590-680, 650; the 3-ethyl analog of I, 296-8°, -,
     650; 1,3-diethyl-5-[2,5-bis(3-methyl-2-benzoxazolinylidene)cyclopentyliden
     e]-barbituric acid, 236-7° (decompose, C6H6), -, -;
     1-dicyanomethylene-2,5-bis(3-methyl-2-benzothiazolinylidene)cyclopentane
     (II) 309-11° (decompose, pyridine-MeOH), 590-680, 665;
     1-dicyanomethylene-2-(3-ethyl-2-benzothiazolinylidene)-5-(3-methyl-2-
     benzothiazolinylidene)cyclopentane, 280-3 (decompose), -, 600; the 3-ethyl
     analog of II, 282-4° (decompose), -, 600; 1-(1-cyano-1-
     ethoxycarbonylmethylene)-2,5-bis(3-methyl-2-benzothiazolinylidene)cyclopen
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tane (III), 301-2° (decompose, pyridine-MeOH), -, 640; 1-dicyanomethylene-2-(3-ethyl-2-benzothiazolinylidene)-5-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]cyclopentane, 278-9° (decompose, pyridine-MeOH), -, 640; 1-dicyanomethylene-2,5-bis [2-(3-ethyl-2-benzothiazolinylidene)ethylidene]cyclopentane, m. 295-6° (decompose, pyridine), -, 770; 1-dicyanomethylene-2,6-bis(3-methyl-2-benzothiazolinylidene)cyclohexane, >330° (pyridine), -, 510; 1-dicyanomethylene-2-(3-ethyl-2-benzothiazolinylidene)-6-(3-methyl-2-benzothiazolinylidene)cyclohexane, 275-7° (decompose), -, 520; 1,3-diethyl-5-{2,5-bis[(3-ethyl-2-benzothiazolinylidene)ethylidene]cyclopentylidene}barbituric acid, 257-8° (decompose, cresol-MeOH), -, -; 1,3-bis(2-methoxyethyl)-5-[2,5-bis(1-methyl-2-naphtho[1,2]-thiazolinylidene)cyclopentylidene]barbituric acid, 268-9° (decompose, pyridine-MeOH), 760, 730; 4-[2,5-bis(1-methyl-2-naphtho[1,2]thiazolinylidene)cyclopentylidene]-3-phenyl-2-isoxazolin-5-one, 253-5° (decompose, pyridine), 765, 730; 2-[2-(1-ethyl-2-naphtho[1,2]thiazolinylidene)-5-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-3(2H)-thianaphthenone 1,1-dioxide, 249-50° (decompose, pyridine-MeOH), -, -; 1,3-diethyl-5-[2-(1-ethyl-2-naphtho[1,2]thiazolinylidene)-5-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]barbituric acid, 245-7° (decompose, pyridine-MeOH), 600-700, 680; 1,3-diethyl-5-[2-(1-ethyl-2-naphtho[1,2]thiazolinylidene)-5-(3-ethyl-2-naphtho[2,1]thiazolinylidene)cyclopentylidene]barbituric acid, 257-8° (decompose, pyridine-MeOH), 580-720, 690; 1,3-diethyl-5-[2-(1-ethyl-2-naphtho[1,2]thiazolinylidene)-5-(1-methyl-2-naphtho[1,2]selenazolinylidene)cyclopentylidene]barbituric acid, 261-2° (decompose, pyridine-MeOH), to 740, 550 and 690; and 4-[2,5-bis(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]-3-methyl-1-phenyl-5-pyrazolone, 275-6° (decompose), -, -. A solution of 0.65 g. III in a mixture of 7.0 g. concentrated H2SO4 and 3.0 g. H2O was heated on a steam bath 30 min., and excess ice and NH3 were added to yield 17% 8,10-ethylene-3,3',9-trimethylthiacarbocyanine bromide, m. 225-6° (decompose, EtOH).

IT Photography
(sensitizers, holopolar cyanine dyes as)

IT Naphtho[1,2-d]thiazolium compounds, 2-[2-(1,3-diethyl-1,2,3,4-tetrahydra-6-hydroxy-2,4-dioxo-5-pyrimidinyl)-3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]-1-ethyl-, hydroxide, inner salt

Naphtho[2,1-d]thiazolium compounds, 1-ethyl-2-[2-(3-hydroxybenzo[b]thien-2-yl)-3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]-, hydroxide, S,S-dioxide, inner salt

Naphtho[2,1-d]thiazolium compounds, 2-[2-(1,3-diethyl-1,2,3,4-tetrahydro-6-hydroxy-2,4-dioxo-5-pyrimidinyl)-3-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-cyclopenten-1-yl]-3-ethyl-, hydroxide, inner salt

RL: PREP (Preparation)

IT 70516-87-9P, 2,4,6(1H,3H,5H)-Pyrimidinetrione, 5-[2,5-bis(1-methylnaphtho[1,2-d]thiazol-2(1H)-ylidene)cyclopentylidene]-1,3-bis(2-methoxyethyl)- 70516-89-1P, 2,4,6(1H,3H,5H)-Pyrimidinetrione, 5-[2,5-bis(1-ethylnaphtho[1,2-d]thiazol-2(1H)-ylidene)cyclopentylidene]-1,3-diethyl- 70545-32-3P, Propanedinitrile, [2-(3-ethyl-2(3H)-benzothiazolylidene)-5-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]cyclopentylidene]- 100498-65-5P, Benzothiazolium, 2-[2-[2-(1,3-diethylhexahydro-2,4,6-trioxo-5-pyrimidinyl)-3-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]-1-cyclopenten-1-yl]ethenyl]-3-ethyl-, inner salt 102947-52-4P, 2-[2-(3-Ethyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)-3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]-3-methylbenzothiazolium hydroxide, inner salt 103166-70-7P, Barbituric acid, 5-[2,5-bis(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-1,3-diethyl- 103166-71-8P, Barbituric acid, 5-[2,5-bis(3-methyl-2-benzoxazolinylidene)cyclopentylidene]-1,3-diethyl- 103278-81-5P, Barbituric acid, 5-[2,5-bis(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]-1,3-diethyl- 103328-46-7P, 3-Ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-2-(5-hydroxy-3-methyl-1-phenylpyrazol-4-yl)-1-cyclopenten-1-yl]benzothiazolium hydroxide, inner salt 109505-13-7P, 2-[2-(1,3-Diethyl-1,2,3,4-tetrahydro-6-hydroxy-2,4-dioxo-5-pyrimidinyl)-3-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-cyclopenten-1-yl]-1-

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     methylnaphtho[1,2-d]selenazolium hydroxide, inner salt   114202-31-2P,
     Δ1,α-Cyclopentaneacetic acid, α-cyano-2,5-bis(3-methyl-2-
     benzothiazolinylidene)-, ethyl ester 114279-53-7P,
     Δ1,α-Cyclopentanemalononitrile, 2-(3-ethyl-2-
     benzothiazolinylidene)-5-(3-methyl-2-benzothiazolinylidene)-
     114617-85-5P, 3-Methyl-2-[2-methyl-3-(3-methyl-2-benzothiazolinylidene)-1-
     cyclopenten-1-yl]benzothiazolium bromide   115123-79-0P,
     2-[2-(Cyanoimidocarbonylmethyl)-3-(3-methyl-2-benzothiazolinylidene)-1-
     cyclopenten-1-yl]-3-methylbenzothiazolium hydroxide, inner salt
     117000-87-0P, 2-[2-[2-(Cyanoimidocarbonylmethyl)-3-[2-(3-ethyl-2-
     benzothiazolinylidene)ethylidene]-1-cyclopenten-1-yl]vinyl]-3-
     ethylbenzothiazolium hydroxide, inner salt   120297-57-6P, Barbituric
     acid, 5-[2,5-bis(1-ethylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-1,3-diethyl-2-thio-   121526-55-4P,
     2-Isoxazolin-5-one, 4-[2,5-bis(1-methylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-3-phenyl-   122724-14-5P, 2-[2-
     (Cyanoimidocarbonylmethyl)-3-(3-methyl-2-benzothiazolinylidene)-1-
     cyclohexen-1-yl]-3-ethylbenzothiazolium hydroxide, inner salt
     122724-64-5P, 2-[2-(Cyanoimidocarbonylmethyl)-3-(3-ethyl-2-
     benzothiazolinylidene)-1-cyclopenten-1-yl]-3-ethylbenzothiazolium
     hydroxide, inner salt   123905-57-7P, 2-[2-(Cyanoimidocarbonylmethyl)-3-(3-
     methyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]-3-methylbenzothiazolium
     hydroxide, inner salt
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 15 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1960:21671  CAPLUS
DN   54:21671
OREF 54:4219i,4220a-e
ED   Entered STN:  22 Apr 2001
TI   Neutrocyanine dyes
IN   Riester, Oskar
PA   Agfa Akt.-Ges.
DT   Patent
LA   Unavailable
INCL 22E; 3
CC   5 (Photography)
FAN.CNT 1
     PATENT NO.          KIND   DATE         APPLICATION NO.        DATE
     ---------------     ----   --------     --------------------   --------
PI   DE 958684                  19570221     DE 1953-A18920         19531007
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 DE 958684       INCL   22E; 3
                 IPCR   C09B0023-00 [I,C*]; C09B0023-01 [I,A]; C09B0023-10
                        [I,A]; C09B0023-12 [I,A]
GI   For diagram(s), see printed CA Issue.
AB   Compds. of the types (R)N.Z.C:(CR'CR'')n:Y (or salt-type derivs.) and
     CH2.(CH2)m.C:C:AB react to produce (R)N.Z.C:(CR'- CR'')n:C.(CH2)m.C:CAB,
     which are new dyes of the neutrocyanine series (non-ionic
     polymethines), where m >2, n is 2-4, Z is a group capable of
     forming a five- or six-membered heterocyclic ring so that the NR group is
     in the 2 or 4 position to the polymethine chain, R is any organic
     radical, R' and R'' are H, alkyl, aryl, or aralkyl radicals, A and B are
     any organic radicals among which at least one must have a negative group, or
     (A)C(B) is a ring system containing negative groups, e.g. carbonyl, ester, or
     nitrile groups, and Y is a group capable of replacement, e.g. S, O, SeR,
     :NR.  The new dyes are photodynamically active and valuable sensitizers
     for silver halide emulsions since they have uniform, nearly sym.
     sensitivity curves.  They may be used further for dyeing acetate rayon.
     Thus, 4 g. of 1,3,3-trimethyl-2-indolinylideneacetaldehyde (I) and 3 g. of
     cyclohexylidenemalononitrile (II), dissolved at 60° in 10 cc. of
     pyridine, 10 cc. of Ac2O added, precipitating with H2O, and filtering gives the
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new dye that is recrystd. from MeOH (red-violet solution), m.p. 158-9°, absolute maximum 555 mμ. Analogous neutrocyanines are prepared from the following starting components (m.p., color of MeOH solns., and absolute maximum given): I and Me cyclopentylidenecyanoacetate (III), (178-9°, red-violet, 560 mμ); 2-methylthio-N-methylbenzothiazole methosulfate (IV) and III, (184°, orange-yellow, 483 mμ); IV and cyclopentylidenemalononitrile (V), (213-14°, orange, 490 mμ); IV and Me cyclohexylidenecyanoacetate (VI), (179°, orange, 492 mμ); IV and 1-phenyl-3-methyl-4-cyclopentylidene-5-pyrazolone (VII), (244°, orange, 492 mμ); 2-methylthio-N-methylquinoline methosulfate (VIII) and III, (215°, violet, 550 mμ); VIII and VI (194°, bluish violet, 570 mμ); VIII and II, (234°, violet blue, 575 mμ); 2-methylthio-N-ethylbenzothiazole ethosulfate (IX) and 5-cyclohexylidene-3-ethylrhodanine (X), (173°, violet, 560 mμ); IX and cyclopentylidene-N-ethylrhodanine (XI), (187°, reddish violet, 545 mμ); N-butylpyrrolidine-3-ethylrhodanine merocyanine di-Me sulfate (XII) and XI, (152°, violet, 560 mμ); IX and XI (187°, reddish violet, 545 mμ); XII and XI, (152°, violet-blue, 575 mμ); XII and X, (162°, violet, 560 mμ); 1,3-dimethylbenzimidazoline-5-(3-ethylrhodanine) merocyanine di-Me sulfate (XIII) and X, (231°, blue, 600 mμ); XIII and XI (235°, blue, 600 mμ.)

IT Dyes
(neutrocyanine, for acetate rayon)

IT Ultraviolet and visible, spectra
(of neutrocyanine dyes)

IT Photography
(sensitizers, neutrocyanine dyes as)

IT 92872-48-5P, Δ1,α-Cyclopentanemalononitrile, 2-(3-methyl-2-benzothiazolinylidene)- 102888-72-2P, 2-Pyrazolin-5-one, 3-methyl-4-[2-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-1-phenyl- 103642-89-3P, Rhodanine, 5-[2-[5-(1-butyl-2-pyrrolidinylidene)-3-ethyl-4-oxo-2-thiazolidinylidene]cyclopentylidene]-3-ethyl- 103643-59-0P, Rhodanine, 5-[2-[5-(1-butyl-2-pyrrolidinylidene)-3-ethyl-4-oxo-2-thiazolidinylidene]cyclohexylidene]-3-ethyl- 108240-37-5P, Δ1,α-Cyclohexaneacetic acid, α-cyano-2-(3-methyl-2-benzothiazolinylidene)-, methyl ester 108668-06-0P, Δ1,α-Cyclopentaneacetic acid, α-cyano-2-(3-methyl-2-benzothiazolinylidene)-, methyl ester 108774-62-5P, Δ1,α-Cyclohexanemalononitrile, 2-(1-methyl-2(1H)-quinolylidene)- 109812-94-4P, Δ1,α-Cyclopentaneacetic acid, α-cyano-2-(1-methyl-2(1H)-quinolylidene)-, methyl ester 110080-91-6P, Δ1,α-Cyclohexaneacetic acid, α-cyano-2-(1-methyl-2(1H)-quinolylidene)-, methyl ester 111141-95-8P, Rhodanine, 3-ethyl-5-[2-(3-ethyl-2-benzothiazolinylidene)cyclohexylidene]- 113222-72-3P, Rhodanine, 3-ethyl-5-[2-(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]- 113651-76-6P, Δ1,α-Cyclohexanemalononitrile, 2-[2-(1,3,3-trimethyl-2-indolinylidene)ethylidene]- 113687-60-8P, Δ1,α-Cyclopentaneacetic acid, α-cyano-2-[2-(1,3,3-trimethyl-2-indolinylidene)ethylidene]-, methyl ester 117372-77-7P, Rhodanine, 5-[2-[5-(1,3-dimethyl-2-benzimidazolinylidene)-3-ethyl-4-oxo-2-thiazolidinylidene]cyclohexylidene]-3-ethyl- 121234-68-2P, Rhodanine, 5-[2-[5-(1,3-dimethyl-2-benzimidazolinylidene)-3-ethyl-4-oxo-2-thiazolidinylidene]cyclopentylidene]-3-ethyl-
RL: PREP (Preparation)
(preparation of)

L17 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2007 ACS on STN
AN 1960:21669 CAPLUS
DN 54:21669
OREF 54:4217a-i,4218a-i,4219a
ED Entered STN: 22 Apr 2001
TI Cyanines
IN Anon.

PA Kodak Soc.
DT Patent
LA Unavailable
CC 5 (Photography)
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | BE 560805 | | 19570930 | BE | |

CLASS

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|---|---|---|

AB 1,3-Diethyl-5-[2,5-bis(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]barbituric acid is prepared by refluxing for 30 min. a mixture of 4.61 g. 1,3-diethyl-5-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]barbituric acid (I), 7.98 g. 1-ethyl-2-ethylthionaphtho[1,2]thiazolium ethosulfate (II), 30 cc. anhydrous pyridine, and 2.02 g. Et3N. After cooling, the reaction mixture is stirred with cold H2O. The solid is filtered and washed with H2O. The residue is stirred with hot MeOH and cooled. The dye is filtered and washed with MeOH, then stirred with 185 cc. EtOH. The yield is 21% red needles, m. 242-3° (decompose) (pyridine); it sensitizes AgBrI emulsions from 530-740 mμ with maximum at 700 mμ. 1,3-Diethyl-5-[2,5,bis(1-ethyl-2(1H) -naphtho[1,2]thiazolylidene)cyclopentylidene]thiobarbituric acid is prepared by heating at 130° for 10 min. a mixture of 2.36 g. 1,3-diethyl-5-[2-(1-ethyl-2(1H)-naphtho-[1,2] thiazolylidene)cyclopentylidene]thiobarbituric acid (III), 3.99 g. II, 10 cc. isoquinoline, and 1.01 g. Et3N. The reaction mixture is stirred with Et2O, then filtered and the residue treated by hot MeOH. The yield is 10% red nee dies, m. 244-5° (decompose) (pyridine/EtOH mixture); it sensitizes emulsions with maximum at 700 mμ. 3-Ethyl-5-[2,5-bis(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]rhodanine is prepared in 0.56 g. yield from 3.74 g. 3-ethyl-5-[2-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]-rhodanine (IV) and 7.34 g. 3-methyl-2-methylthiobenzothiazolium p-toluenesulfonate (V); the crude dye is extracted with ligroine (100-110°) then with hot C6H6, and the dark green crystals, m. 286-7° (decompose). 1,3-Diethyl-5-[2,5-bis(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]barbituric acid is prepared in 26% yield from 1,3-diethyl-5-[2(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]barbituric acid (VI) and V; the dye, m. 298-9° (decompose) (EtOH), sensitizes emulsions from 590 to 680 mμ with maximum at 650 mμ. Similarly, 1,3-diethyl-5-[2,5,bis(3-ethyl-2(3H) - benzothiazolylidene)cyclopentylidene]barbituric acid, m. 296-8° (decompose) (EtOH), is obtained in 9% yield; it sensitizes emulsions with maximum at 650 mμ. 1,3-Diethyl-5-[2,5-bis(3-methyl-2(3H)-benzoxazolylidene)cyclopentylidene]barbituric acid is prepared by heating, unti bubbles appear, a mixture of 4.67 g. 2-methylthiobenzoxazole and 5.27 g. Me p-toluenesulfonate. The quaternary salt is refluxed for 7 min. with 2.70 g. 1,3-diethyl-5-[2-(3-methyl-2(3H)-benzoxazolylidene)cyclopentylidene]barbituric acid, 15 cc. anhydrous pyridine, and 2.86 g. Et3N. The yield is 0.05 g. dark green crystals, m. 236-7° (decompose) (C6H6). 1-Dicyanomethylene-2,5-bis(3-methyl-2(3H)-benzothiazolylidene)cyclopentane (VII), m. 309-11° (decompose), is obtained in 14% yield from 1-dicyanomethylene-2-(3-methyl-2(3H)-benzothiazolylidene)cyclopentane and V; it sensitizes emulsions from 590 to 680 mμ with maximum at 665 mμ. The following compds. have similarly been prepared: 1-dicyanomethylene-2-(3-ethyl-2(3H)-benzothiazolylidene)-5-(3-methyl-2(3H)-benzothiazolylidene)cyclopentane, m. 280-3° (decompose), in 7% yield, maximum sensitization at 600 mμ; 1-dicyanomethylene-2,5-bis(3-ethyl-2(3H)-benzothiazolyllidene)cyclopentane, m. 282-4° (decompose), in 13% yield, maximum sensitization at 600 mμ; 1-(1-cyano-1-ethoxycarbonylmethylene)-2,5-bis(3-methyl-2(3H)-benzothiazolylidene)cyclopentane (VIII), m. 301-2° (decompose), in 30% yield, maximum sensitization at 640 mμ; 1-dicyanomethylene-2-(3-ethyl-2(3H)-benzothiazolylidene)-5-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]cyclopentane, m. 278-9° (decompose), in 30% yield, maximum sensitization at 640 mμ. 1-Dicyanomethylene-2,5-bis[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]cyclopentane is prepared by refluxing for 15 min. 1.60 g. 1-dicyanomethylene-2-[(3-ethyl-2(3H)-benzothiazolylidene)ethylidene]cyclopentane, 4.50 g. 2-(2-acetylanilinovinyl)-3-ethylbenzothiazolium iodide (IX), 40 cc. pyridine, 1.01 g. Et3N, and 1.02 g. Ac2O; after hot filtration, the dye is washed with pyridine, then with H2O, and dark blue needles, m. 295-6° (decompose) (pyridine), are obtained in 66% yield, maximum sensitization at 770 mμ. Similarly, 1-dicyanomethylene-2,6-bis(3-methyl-2(3H)-benzothiazolylidene)cyclohexane, m. >330°, is obtained in 8% yield, maximum sensitization at 510 mμ, and 1-dicyanomethylene-2-(3-ethyl-2(3H)-benzothiazolylidene)-6-(3-methyl-2(3H)-benzothiazolylidene)cyclohexane, m. 275-7° (decompose), maximum sensitization at 520 mμ. 1,3-Diethyl-5-{2,5-bis[(3-ethyl-2(3H) - benzothiazolylidene)ethylidene]cyclopentylidene}barbituric acid, m. 257-8° (decompose), is prepared in 14% yield from 5-cyclopentylidene-1,3-diethylbarbituric acid (X), IX, and Et3N in 50 cc. absolute EtOH. Similarly, 1,3-bis(2-methoxyethyl)-5-[2,5-bis(1-methyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]barbituric acid, m. 268-9° (decompose), is obtained in 26% yield; it sensitizes emulsions to 760 mμ with maximum at 730 mμ. 4-[2,5-Bis(1-methyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]-3-phenyl-5(4H)-isoxazolone is prepared by heating at 140-50°, 2.12 g. 4 - [2 - (1 - methyl - 2(1H) - naphtho [1,2]thiazolylidene)cyclopentylidene]-3-phenyl-5(4H)-isoxazolone (XI), 4.17 g. 1-methyl-2-methylthionaphtho[1,2]thiazolium p-toluenesulfonate, 15 cc. isoquinoline, and 1.01 g. Et3N; the yield is 20% greenish black crystals, m. 253-5° (decompose), sensitizing emulsions to 765 mμ with maximum at 730 mμ. The following dyes have been similarly prepared: 2-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)-5-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]-3(2H)-thianaphthenone 1,1-dioxide, m. 249-50° (decompose), in 17% yield; 1,3-diethyl-5-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)-5-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]barbituric acid, m. 245-7° (decompose), in 10% yield, sensitization from 600 to 700 mμ with maximum at 680 mμ; 1,3-diethyl-5-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)-5-(3-ethyl-2(3H)-naphtho[2,1]thiazolylidene)cyclopentylidene]barbituric acid, m. 257-8° (decompose), in 3% yield, sensitization from 580 to 720 mμ with maximum at 690 mμ; 1,3-diethyl-5-[2-(1-ethyl-2(1H)-naphtho [1,2] thiazolylidene)-5-(1-methyl-2(1H)-naphtho [1,2] selenazolylidene)cyclopentylidene]barbituric acid, m. 261-2° (decompose), in 17% yield, sensitization to 740 mμ with maximum at 550 and 690 mμ; 4-[2,5-bis(3-ethyl-2(3H)-benzothiazolylidene)cyclopentylidene]-3-methyl-1-phenyl-5-pyrazolone, the crude dye being washed successively with Et2O, H2O, EtOAc, and C6H6 before crystallization from hot EtOAc, m.p. 275-6° (decompose). 8,10-Ethylene-3,3',9-trimethylthiacarbocyanine bromide is prepared by heating on a steam-bath for 30 min. a solution of 0.65 g. VIII in a mixture of 7.0 g. concentrated H2SO4 and 3.0 g. H2O; after ice and excess NH4OH addition, the solid is filtered and washed with H2O. The residue is washed with MeOH and the filtrate is treated with excess aqueous KBr solution After cooling, filtering, and washing with H2O, then with Et2O, and 2 recrystns. from EtOH, the yield is 17% in dark green dye, m. 225-6° (decompose). The same product is similarly obtained from VII. Intermediary 5-cyclopentylidene-3-ethylrhodanine, m. 100.5-1.5° (MeOH), is prepared by refluxing for 75 min. 32.2 g. 3-ethylrhodanine, 33.6 g. cyclopentanone, 30 cc. EtOH, and 2 cc. pyridine, yield 89%. 5-Cyclopentylidene-1,3-diethylbarbituric acid, m. 74-5°, 5-cyclopentylidene-1,3-diethyl-2-thiobarbituric acid, m. 88.5-90°, 5-cyclopentylidene-1,3-bis(2-methoxyethyl)barbituric acid, m. 60-2°, and 5-cyclopentylidene-3-ethyl-1-phenyl-2-thiohydantoin, m. 126-7°, have similarly been prepared 4-Cyclopentylidene-3-phenyl-5(4H)-isoxazolone, m. 158-9° (MeOH), is prepared by refluxing for 4 hrs. 16.1 g. 3-phenyl-5(4H)-isoxazolone, 8.4 g. cyclopentanone, 2.5 g. NH4OAc, 4.0 cc. AcOH, and 150 cc. CHCl3, H2O being continuously removed. 4-Cyclopentylidene-3-methyl-1-phenyl-5-pyrazolone, m. 124-5°, 2-cyclopentylidene-3(2H)-thianaphthenone 1,1-dioxide, m. 192-3°, 5-cyclohexylidene-3-ethylrhodanine, m. 93-4°, and 5-cyclohexylidene-1,3-diethylbarbituric acid, m. 230-2°, have similarly been prepared Other intermediates are: 4-[2-(3-ethyl-2(3H)-benzothiazolylidene)cyclopentylidene]-3-methyl-1-phenyl-5-pyrazolone, m.212-13° (decompose); 3-ethyl-5-[2-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]-1-phenyl-2-thiohydantoin, m. 256-7° (decompose), sensitizing emulsions until 610 mμ with maximum at 560 mμ; 3-ethyl-5-[2-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]-2-thio-2,4-oxazolidinedione, m. 182-3° (decompose); 1,3-diethyl-5-[2-(3-methyl-2(3H)-benzoxazolylidene)cyclopentylidene]-2-thiobarbituric acid, m. 230-2°; 1,3-diethyl-5-[2-(3-methyl-2(3H)-benzothiazolylidene)cyclopentylidene]barbituric acid, m. 260-1° (decompose); 1,3-bis(2-methoxyethyl)-5,[2-(1-methyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]barbituric acid, m. 243-5° (decompose); 2-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)cyclopentylidene]-3(2H)-thianaphthenone 1,1-dioxide, m. 274-5° (decompose), sensitizing emulsions to 530 mμ; 3-ethyl-5-[2-(1-ethyl-2(1H)-naphtho[1,2]thiazolylidene)cyclohexylidene]rhodanine, m. 189-91° (decompose), sensitizing emulsions to 610 mμ; I, m. 250-1° (decompose); III, m. 234-5° (decompose); IV, m. 220-1° (decompose), sensitizing emulsions to 630 mμ; VI, m. 274-5° (decompose), and XI, m. 260-1° (decompose), sensitizing emulsions until 540 mμ with maximum at 520 mμ.

IT Photography
(sensitizers, cyanine dyes as)

IT 36771-30-9P, 2-Isoxazolin-5-one, 4-cyclopentylidene-3-phenyl- 65156-02-7P, 2-Isoxazolin-5-one, 4-[2-(1-methylnaphtho[1,2-d]thiazolin-2-ylidene)cyclopentylidene]-3-phenyl- 65181-57-9P, Δ1,α-Cyclopentanemalononitrile, 2,5-bis(3-ethyl-2-benzothiazolinylidene)- 70516-87-9P, Barbituric acid, 5-[2,5-bis(1-methylnaphtho[1,2-d]-thiazolin-2-ylidene)cyclopentylidene]-1,3-bis(2-methoxyethyl)- 70516-89-1P, Barbituric acid, 5-[2,5-bis(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)cyclopentylidene]-1,3-diethyl- 70516-90-4P, Barbituric acid, 1,3-diethyl-5-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-5-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]- 70545-32-3P, Δ1,α-Cyclopentanemalononitrile, 2-(3-ethyl-2-benzothiazolinylidene)-5-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]- 70545-33-4P, Δ1,α-Cyclopentanemalononitrile, 2,5-bis[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]- 99075-21-5P, Rhodanine, 5-cyclopentylidene-3-ethyl- 99859-08-2P, Rhodanine, 5-cyclohexylidene-3-ethyl- 100876-18-4P, Barbituric acid, 5-cyclohexylidene-1,3-diethyl- 101265-17-2P, Barbituric acid, 5-cyclopentylidene-1,3-diethyl-2-thio- 101265-34-3P, Barbituric acid, 5-cyclopentylidene-1,3-diethyl- 101288-67-9P, Hydantoin, 5-cyclopentylidene-3-ethyl-1-phenyl-2-thio- 101354-84-1P, Barbituric acid, 5-cyclopentylidene-1,3-bis(2-methoxyethyl)- 101792-85-2P, Rhodanine, 3-ethyl-5-[2-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]- 101793-37-7P, 2,4-Oxazolidinedione, 3-ethyl-5-[2-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-2-thio- 102373-83-1P, Barbituric acid, 1,3-diethyl-5-[2-(3-methyl-2-benzothiazolinylidene)cyclopentylidene]- 102373-84-2P, Barbituric acid, 1,3-diethyl-5-[2-(3-methyl-2-benzoxazolinylidene)cyclopentylidene]-2-thio- 102947-52-4P, Rhodanine, 5-[2,5-bis(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-3-ethyl- 102951-29-1P, 2-Pyrazolin-5-one, 4-[2-(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]-3-methyl-1-phenyl- 103166-70-7P, Barbituric acid, 5-[2,5-bis(3-methyl-2-benzothiazolinylidene)cyclopentylidene]-1,3-diethyl- 103166-71-8P, Barbituric acid, 5-[2,5-bis(3-methyl-2-benzoxazolinylidene)cyclopentylidene]-1,3-diethyl- 103278-81-5P, Barbituric acid, 5-[2,5-bis(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]-1,3-diethyl- 103328-46-7P, 2-Pyrazolin-5-one, 4-[2,5-bis(3-ethyl-2-benzothiazolinylidene)cyclopentylidene]-3-methyl-1-phenyl- 105474-97-3P, Benzo[b]thiophen-3(2H)-one, 2-cyclopentylidene-, 1,1-dioxide 106596-98-9P, Barbituric acid, 5-[2,5-bis[2-(3-ethyl-2-

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     benzothiazolidene)ethylidene]cyclopentylidene]-1,3-diethyl-
     109650-98-8P, 2-Pyrazolin-5-one, 4-cyclopentylidene-3-methyl-1-phenyl-
     113182-69-7P, Δ1,α-Cyclopentanemalononitrile,
     2,5-bis(3-methyl-2-benzothiazolinylidene)-   114202-31-2P,
     Δ1,α-Cyclopentaneacetic acid, α-cyano-2,5-bis(3-methyl-2-
     benzothiazolinylidene)-, ethyl ester 114279-52-6P,
     Δ1,α-Cyclohexanemalononitrile, 2,5-bis(3-methyl-2-
     benzothiazolinylidene)- 114279-53-7P, Δ1,α-
     Cyclopentanemalononitrile, 2-(3-ethyl-2-benzothiazolinylidene)-5-(3-methyl-
     2-benzothiazolinylidene)-   114280-13-6P, Hydantoin, 3-ethyl-5-[2-(3-
     methyl-2-benzothiazolinylidene)cyclopentylidene]-1-phenyl-2-thio-
     114398-32-2P, Δ1,α-Cyclohexanemalononitrile,
     2-(3-ethyl-2-benzothiazolinylidene)-5-(3-methyl-2-benzothiazolinylidene)-
     114617-85-5P, Thiacarbocyanine bromide, 8,10-ethylene-3,3',9-trimethyl-
     114617-85-5P, 3-Methyl-2-[2-methyl-3-(3-methyl-2-benzothiazolinylidene)-1-
     cyclopenten-1-yl]benzothiazolium bromide   118766-46-4P, Barbituric acid,
     1,3-diethyl-5-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-2-thio-   119570-33-1P, Barbituric acid,
     1,3-bis(2-methoxyethyl)-5-[2-(1-methylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-   120297-57-6P, Barbituric acid,
     5-[2,5-bis(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)cyclopentylidene]-1,3-
     diethyl-2-thio-   121526-54-3P, Barbituric acid, 1,3-diethyl-5-[2-(1-
     ethylnaphtho[1,2-d]thiazolin-2-ylidene)-5-(1-methylnaphtho[1,2-
     d]selenazolin-2-ylidene)cyclopentylidene]-   121526-55-4P,
     2-Isoxazolin-5-one, 4-[2,5-bis(1-methylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-3-phenyl-   122541-81-5P, Barbituric acid,
     1,3-diethyl-5-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-5-(3-
     ethylnaphtho[2,1-d]thiazolin-2-ylidene)cyclopentylidene]-   123935-03-5P,
     Rhodanine, 3-ethyl-5-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclohexylidene]-   124100-30-7P, Benzo[b]thiophen-3(2H)-one,
     2-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-5-(3-methyl-2-
     benzothiazolinylidene)cyclopentylidene]-, 1,1-dioxide   124103-52-2P,
     Barbituric acid, 1,3-diethyl-5-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-
     ylidene)cyclopentylidene]-   124105-69-7P, Benzo[b]thiophen-3(2H)-one,
     2-[2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)cyclopentylidene]-,
     1,1-dioxide
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 17 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1959:38638  CAPLUS
DN   53:38638
OREF 53:6853g-i,6854a-b
ED   Entered STN:  22 Apr 2001
TI   Supersensitization of photographic silver halide emulsions
IN   Jones, Jean E.
PA   Eastman Kodak Co.
DT   Patent
LA   Unavailable
CC   5 (Photography)
FAN.CNT 1
     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
PI   US 2860983                 19581118   US 1956-586055         19560521
     GB 863486                             GB
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 2860983      IPCR   G03C0001-08 [I,C*]; G03C0001-28 [I,A]
                 NCL    430/572.000; 430/594.000
AB   Photographic Ag halide emulsions sensitized with polymethine
     dyes of the types I and X are supersensitized by the incorporation of
     certain ketones.  Cyclopentanone (1.68 g.) and 8.75 g.
     2,5-dimethyl-1-phenylpyrrole-3-carboxaldehyde in 20 cc. EtOH refluxed,
     treated with 2.5 g. 40% aqueous NaOH, cooled to room temperature, and filtered
gave
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     76% crude material which dissolved in hot pyridine, filtered, and repptd.
     with MeOH gave 2,5-bis[(2,5-dimethyl-1-phenyl-3-
     pyrrolyl)methylene]cyclopentanone, yellow needles, m. 274-5°
     (decomposition).  p-Me2NC6H4CHO (10 g.) and 11.7 g. 2-C10H7Ac in 200 cc. EtOH
     treated with 3 cc. 40% aqueous NaOH, kept for 15-18 hrs. at room temperature,
and
     filtered yielded 10.5 g. 2-(p-dimethylaminobenzylideneacetyl)naphthalene,
     m. 109-10° (from EtOH).  p-Me2NC6H4C:CHCHO(3.5 g.), 2.4 g. AcPh,
     and 40 cc. EtOH warmed, treated with 4 cc. 10% aqueous NaOH, and stored
     overnight deposited 3.8 g. p-Me2NC6H4(CH:CH)2Bz (XII), red plates, m.
     151-3°.  3-Ethyl-2-ethylthiobenzothiazolium ethyl sulfate (3.49
     g.), 3.3 g. H2C(CN)2, 15 cc. EtOH, and 1.01 g. Et3N refluxed for 10 min.,
     cooled, and filtered gave 84% (crude) 2-dicyanomethylene-3-
     ethylbenzothiazoline, m. 197-8° (from MeOH).  1-Ethyl-2-
     phenylthioquinolinium p-toluenesulfonate (4.37 g.) and H2C(CN)2 gave
     similarly 84% (crude) 2-dicyanomethylene-1-ethyl-1,2-dihydroquinoline,
     yellow needles, m. 195-6° (from MeOH).  The sensitivity curves are
     recorded for Ag halide emulsions sensitized with 2-(3,3-dicyano-2-
     methylallylidene)-1-ethylnaphtho[1.2]thiazoline, 2-(3,3-dicyano-2-
     phenylallylidene)-1-methylnaphtho[1.2]thiazoline, and 2-(3,3-dicyano-2-
     ethylallylidene)-2-methylbenzothiazoline and with these dyes in
     combination with XII.
IT   Ketones
        (as photographic supersensitizers)
IT   1030-27-9P, Chalcone, 4-dimethylamino-   6597-46-2P, 2,4-
     Pentadienophenone, 5-(p-dimethylaminophenyl)-   57221-72-4P,
     2'-Acrylonaphthone, 3-(p-dimethylaminophenyl)-   58471-77-5P,
     Malononitrile, [4-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-phenyl-2-
     butenylidene]-   59900-35-5P, Malononitrile, [α-[(1-
     methylnaphtho[1,2-d]thiazolin-2-ylidene)methyl]benzylidene]-
     61681-11-6P, Δ2,α-Benzothiazolinemalononitrile, 3-ethyl-
     61681-12-7P, 2-Cyclohexene-1-carboxylic acid, 4-(dicyanomethylene)-2-(3-
     methyl-2-benzoxazolinylidenemethyl)-, ethyl ester   92872-47-4P,
     Malononitrile, [4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-
     92872-48-5P, Δ1,α-Cyclopentanemalononitrile,
     2-(3-methyl-2-benzothiazolinylidene)-   93717-82-9P, Malononitrile,
     [2-(3-ethyl-2-benzoxazolinylidene)-ethylidene]-   94674-04-1P,
     Malononitrile, [4-(3-ethyl-2-benzoxazolinylidene)-1-methyl-2-butenylidene]-
        96590-71-5P, Cyclopentanone, 2,5-bis[(2,5-dimethyl-1-phenylpyrrol-3-
     yl)methylene]-   99077-56-2P, Malononitrile, [4-(1-ethylnaphtho[1,2-
     d]thiazolin-2-ylidene)-2-butenylidene]-   99905-53-0P, Malononitrile,
     [4-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-methyl-2-butenylidene]-
     108272-68-0P, Δ21H,α-Quinolinemalononitrile, 1-ethyl-
     108367-93-7P, Malononitrile, [1-ethoxy-4-(3-ethyl-2-benzothiazolinylidene)-
     2-methyl-2-butenylidene]-   109504-73-6P, Malononitrile,
     [1-(3-methyl-2-benzothiazolinylidenemethyl)propylidene]-   111500-09-5P,
     Malononitrile, [2-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-1-
     methylethylidene]-
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 18 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1959:38636  CAPLUS
DN   53:38636
OREF 53:6852f-i,6853a-e
ED   Entered STN:  22 Apr 2001
TI   Supersensitization of photographic silver halide emulsions
IN   Jones, Jean E.
PA   Eastman Kodak Co.
DT   Patent
LA   Unavailable
CC   5 (Photography)
FAN.CNT 1
     PATENT NO.          KIND   DATE          APPLICATION NO.        DATE
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PI   US 2860981                    19581118    US 1956-586053        19560521
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 2860981      IPCR   G03C0001-08 [I,C*]; G03C0001-28 [I,A]
                 NCL    430/572.000
GI   For diagram(s), see printed CA Issue.
AB   Photographic silver halide emulsions containing polymethine dyes are
     supersensitized by the incorporation of pyridine bases.  Useful
     polymethine dyes for supersensitization combinations are
     open-chain merocyanines of the general type Z.N(R).C(:CHCH)n-1:
     C(R')C(R''):C(CN)2 (I), where R is an alkyl or substituted alkyl group, R'
     is H or a lower alkyl group, R'' is H, a lower alkyl, alkoxyl, aryl, or
     heterocyclic group, or R' and R'' together are an alkylene group, n = 1 or
     2, and Z are the nonmetallic atoms to complete a heterocyclic nucleus.
     2-(2-Acetylanilinovinyl)-3-ethylbenzoxazolium iodide (17.36 g.), 13.2 g.
     CH2(CN)2, 50 cc. EtOH, and 8.08 g. Et3N were refluxed for 10 min., cooled,
     and filtered.  The residue washed with MeOH yielded 95% (crude)
     2-(3,3-dicyanoallylidene)-3-ethylbenzoxazoline, yellow needles, m.
     174-80° (from MeOH).  2-(4-Acetylanilino-1,3-butadienyl)-1-
     ethylnaphtho[1.2]-thiazolium iodide (5.26 g.), 3.3 g. H2C(CN)2, 15 cc.
     EtOH, and 1.01 g. Et3N refluxed 10 min. and cooled yielded 30% (crude)
     2-(5,5-dicyano-2,4-pentadienylidene)-1-ethylnaphtho[1.2]thiazoline (II)
     which dissolved in 50 cc. hot pyridine, filtered, and repptd. with 150 cc.
     MeOH yielded dark bluish crystals, m. 278-9° (decomposition).
     2-(4-Acetylanilino-1,3-butadienyl)-3-ethylbenzothiazolium iodide (4.76 g.)
     treated similarly with H2C(CN)2 and the crude product (43%) dissolved in
     50 cc. hot pyridine, filtered, and repptd. with 300 cc. MeOH yielded
     2-(5,5-dicyano-2,4-pentadienylidene)-3-ethylbenzothiazoline (III),
     steel-blue needles, m. 245-6° (decomposition).  Similarly were prepared
     the following dyes: 3-Me analog (IV) of III, m. 250-1° (decomposition);
     3-ethylbenzoxazoline analog of III, m. 194-5° (decomposition);
     2-(3,3-dicyanoallylidene)-3-ethylbenzothiazoline (V), m. 207-8°
     (decomposition); Se analog of V, m. 212-13° (decomposition);
     2-(5,5-dicyano-4-phenyl-2,4-pentadienylidene)-3-methylbenzothiazoline,
     (VI) m. 225-6° (decomposition); 1-methylnaphtho[1.2]thiazoline analog of
     VI, m. 273-4° (decomposition); and 2-(3,3-dicyanoallylidene)-1-
     ethylnaphtho[1.2]thiazoline, m. 301-2° (decomposition).
     3-Methyl-2-methylthiobenzothiazolium p-toluenesulfonate (VII) (18.35 g.),
     13.2 g. 1-dicyanomethylenecyclopentane (VIII), 35 cc. absolute EtOH, and 5.05
     g. Et3N refluxed 20 min., cooled, and filtered yielded 89% (crude)
     1-dicyanomethylene-2-(3-methyl-2[3H]-benzothiazolylidene)cyclopentane
     (IX), red crystals, m. 208-9° (decomposition)(from EtOH).  The 3-Et
     analog (17.45 g.) of VII and VIII gave similarly 51% (crude) 3-Et analog
     of IX, red crystals, m. 226-7° (decomposition)(from MeOH).
     2-Methylthiobenzoxazole (8.25 g.) and 9.3 g. p-MeC6H4SO3Me were heated
     over a free flame until bubbles appeared, cooled to room temperature, refluxed
     20 min. with 6.6 g. VIII, 35 cc. absolute EtOH, and 5.05 g. Et3N, cooled, and
     filtered.  The residue washed with MeOH yielded 34% crude
     2(3H)-benzoxazolylidene analog of IX, orange-yellow needles, m.
     197-8° (from MeOH).  VII (9.35 g.), 7.3 g. 1-
     dicyanomethylenecyclohexane, 25 cc. absolute EtOH, and 2.53 g. Et3N refluxed
     20 min. and cooled yielded 84% (crude) cyclohexane analog of IX, scarlet
     needles, m. 220-1° (decomposition)(from EtOH).  2-(2-Acetylanilinovinyl)-
     3-ethylbenzothiazolium iodide (45.0 g.), 26.4 g. VIII, 100 cc. absolute EtOH,
     and 10.1 g. Et3N were refluxed for 0.5 hr., stirred with cold water,
     chilled, and filtered.  The residue heated with stirring with MeOH and
     filtered after cooling gave 13% crude 1-dicyanomethylene-2-[3-ethyl-2(3H)-
     benzothiazolylideneethylidene]cyclopentane, dark crystals with a green
     reflex, m. 250-2° (decomposition)(from pyridine).  Similarly was prepared
     2-(3,3-dicyanoallylidene)-5-methoxy-1,3,3-trimethylindoline, m.
     228-9°.  The sensitivity curves are recorded for Ag halide
     emulsions sensitized with II, IV, and V, and with these dyes and added
     pyridine.  The sensitometric measurements for Ag halide emulsions
     sensitized with the dyes described in the presence and absence of pyridine
     are tabulated.
IT   Photography
        (sensitizers (super-), ketones or pyridine bases as for
        polymethine dyes)
IT   110-86-1, Pyridine
        (in photographic supersensitization)
IT   110-86-1, Pyridine bases
        (photographic supersensitization by)
IT   57296-02-3P, Malononitrile, [2-(3-ethyl-2-benzothiazolinylidene)-
     ethylidene]- 61681-30-9P, Δ1,α-
     Cyclopentanemalononitrile, 2-(3-methyl-2-benzoxazolinylidene)-
     72861-62-2P, Malononitrile, [4-(3-methyl-2-benzothiazolinylidene)-1-phenyl-
     2-butenylidene]-   88894-02-4P, Malononitrile, [2-(1-ethylnaphtho[1,2-
     d]thiazolin-2-ylidene)ethylidene]-   92432-66-1P, Malononitrile,
     [4-(3-methyl-2-benzothiazolinylidene)-2-butenylidene]-   92872-47-4P,
     Malononitrile, [4-(3-ethyl-2-benzothiazolinylidene)-2-butenylidene]-
     92872-48-5P, Δ1,α-Cyclopentanemalononitrile,
     2-(3-methyl-2-benzothiazolinylidene)- 93332-88-8P,
     Δ1,α-Cyclopentanemalononitrile, 2-(3-ethyl-2-
     benzothiazolinylidene)-   93717-82-9P, Malononitrile, [2-(3-ethyl-2-
     benzoxazolinylidene)-ethylidene]-   94327-88-5P, Malononitrile,
     [4-(3-ethyl-2-benzoxazolinylidene)-2-butenylidene]-   94578-93-5P,
     Malononitrile, [α-[3-(3-ethyl-2-benzoxazolinylidene)propenyl]-2-
     thenylidene]- 94622-44-3P, Δ1,α-
     Cyclohexanemalononitrile, 2-(3-methyl-2-benzothiazolinylidene)-
     94674-04-1P, Malononitrile, [4-(3-ethyl-2-benzoxazolinylidene)-1-methyl-2-
     butenylidene]-   94932-45-3P, Malononitrile, [2-(5-methoxy-1,3,3-trimethyl-
     2-indolinylidene)ethylidene]-   96954-82-4P, Malononitrile,
     [2-(3-ethyl-2-benzoselenazolinylidene)ethylidene]- 98823-50-8P,
     Δ1,α-Cyclopentanemalononitrile, 2-[2-(3-ethyl-2-
     benzothiazolinylidene)ethylidene]-   99077-56-2P, Malononitrile,
     [4-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-2-butenylidene]-
     103714-41-6P, Malononitrile, [4-(1-methylnaphtho[1,2-d]thiazolin-2-
     ylidene)-1-phenyl-2-butenylidene]-
     RL: PREP (Preparation)
        (preparation of)

L17  ANSWER 19 OF 19  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1954:41621  CAPLUS
DN   48:41621
OREF 48:7431f-i,7432a-i,7433a-d
ED   Entered STN:  22 Apr 2001
TI   Light absorption and constitution of merocyanines
AU   Coenen, Max; Pestemer, Max
SO   Zeitschrift fuer Elektrochemie und Angewandte Physikalische Chemie (1953),
     57, 785-95
     CODEN: ZEAPAA; ISSN: 0372-8323
DT   Journal
LA   Unavailable
CC   3 (Electronic Phenomena and Spectra)
AB   Mols. with conjugated double bonds in a chain, with auxochromic N atoms
     and antiauxochromes, CN or COOR, at opposite ends, were studied with
     respect to their light absorption in the visible and UV regions.  CN and
     COOR give approx. the same bathochromic shift. :C(CN)2 and :C(CN)(COOR)
     show similar spectra; introduction of: C(COOR)2 gives a bathochromic
     shift, as does increasing the length of the polymethine chain.
     Polymethine chains substituted in the 2 and 3 positions prefer a
     "boat" form and give simpler and higher absorption bands than do
     unsubstituted chains.  The CN group has an inductive effect, but no
     mesomeric effect.  Compds. studied were (compound, absorption maximum (A) (log
     ε)): cinnamonitrile, 2740(4.23); Me cinnamate, 2760(4.37); Me
     α-cyanocinnamate, 3049(4.30); Me 2-cyano-5-phenyl-2,4-pentadienoate,
     3413(4.492); Bu 1-cyano-6-phenylhexatrienecarboxylate (I) (Bu
     2-cyano-7-phenyl-2,4,6-hexatrienoate), 3817(4.653), 2604(3.892); Bu
     1-cyano-8-phenyloctatetraenecarboxylate (II) (Bu 2-cyano-9-phenyl-2,4,6,8-
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octatetraenoate), 4149(4.70), 2817(4.00); p-dimethylaminocinnamonitrile (III/IV isomers), 3620(4.55), 2451(4.06) (III), 3620(4.60), 2455(4.05) (IV); 1-cyano-4-(p-dimethylaminophenyl)-1,3-butadiene(V/VI isomers), 3906(4.43), 2610 (4.22) (V), 3880(4.43), 2610(4.19)(VI); 1-cyano-6-(p-dimethylaminophenyl)-1,3,5-hexatriene(VII/VIII isomers), 4098(4.55), 2835(4.22)(VII), 4132(4.55), 2835(4.33)(VIII); Et p-dimethylaminocinnamate (IX), 3635(4.423), 2440(4.01); Et α-carbethoxy-p-dimethylaminocinnamate (X), 3760(4.58), 2495(4.03); α-cyano-p-dimethylaminocinnamonitrile (XI), 4325(4.69), 3185(3.30), 3065(3.27), 2685(3.88); 1,1,dicyano-4-(p-dimethylaminophenyl)-1,3-butadiene (XII), 4830(4.62), 3145(3.76), 2985(3.76), 2795(3.85); Bu α-cyano-p-dimethylaminocinnamate (XIII), 4230(4.715), 3215(3.38), 3067(3.32), 2963(3.935); Bu 2-cyano-5-(p-dimethylaminophenyl)-2,4-pentadienoate (XIV), 4717(4.602), 2858(4.06); Bu 2-cyano-7-(p-dimethylaminophenyl)-2,4,6-hexatrienoate (XV), 4938(4.602), 3175(4.114), 2560(3.95); 1,3,3-trimethyl-2-(5,5-dicyano-2,4-pentadienylidene)indoline (XVI), 5265(4.965), 3105(3.642), 2705(3.675); 1,3,3-trimethyl-2-(5,5-dicyano-4-methyl-2,4-pentadienylidene) indoline (XVII), 5235(4.903), 3105(3.672), 2705(3.653); 1,3,3-trimethyl-2-(5,5-dicyano-4-ethyl-2,4-pentadienylidene)indoline (XVIII), 5250(4.852), 2925(3.92); 1,3,3-trimethyl-2-(5,5-dicyano-3-ethyl-2,4-pentadienylidene)indoline (XIX), 5265(4.995), 2815 (3.755); 1,3,3-trimethyl-2-(5,5-dicyano-4-ethyl-3-methyl-2,4-pentadienylidene)indoline (XX), 5305(4.767), 2940(4.080); 2-[2-(1,3,3-trimethylindolinylidene)ethylidene]cyclohexylidenemalononitrile (XXI), 5495(4.582), 2940(4.248); 2-[2-(1,3,3-trimethylindolinylidene)ethylidene]cyclopentylidenemalononitrile (XXII), 5700(4.84), 2780(4.23); Me 2-[2-(1,3,3-trimethylindolinylidene)ethylidene] cyclohexylidenecyanoacetate (XXIII), 5090(4.431), 2965(4.328); Me 2-[2-(1,3,3-trimethylindolinylidene)ethylidene]cyclopentylidenecyanoacetate (XXIV), 5495(4.725), 2875(2.600); 1,3,3,5-tetramethyl-2-(5-cyano-5-butoxycarbonyl-2,4-pentadienylidene)indoline (XXV), 5335(4.955), 3185(3.725), 2740(3.748); Me 2-[2-(1,3,3,5-tetramethylindolinylidene)ethylidine]cyclohexylidenecyanoacetate (XXVI), 5235(4.450), 2985(4.302); 1,3,3-trimethyl-2-(3,3-dicyanoallylidene)indoline (XXVII), 4350(4.85), 2940(3.40), 2595(3.83); and 1,3,3-trimethyl-2-(3-cyano-3-ethoxycarbonylallylidene)indoline (XXVIII), 4350(4.92), 2940(3.40), 2565(3.85). The first 4 compds. above were obtained by known methods. I obtained in 5-g. yield by warming a mixture of 10.6 g. C6H5CHO, 15.1 g. Bu α-cyanosorbate (XXIX), 10 drops piperidine, and 0.4 g. piperidine acetate 2 days at 50°, adding 15 mL. MeOH, and cooling to 0°, yellow flakes from glacial HOAc, m. 150-1°; similarly, cinnamaldehyde and XXIX give II. α-Cyano-p-dimethylaminocinnamic acid (XXX) obtained in 170-g. yield from 200 g. Et α-cyano-p-dimethylaminocinnamate in 2500 mL. MeOH and 210 g. 50% NaOH, refluxed one hr., poured into 12 l. HOH, and acidified with HOAc; 31 g. XXX, 280 g. acetamide, and 2 g. electrolytic Cu melted at 110°, heated with stirring to 170° and to 190° after CO2 evolution ceased, cooled to 120°, and poured into 2 l. HOH, gave 20 g. of isomeric III/IV; 20 g. of the mixture dissolved in 300 mL. boiling MeOH gave 3 g. IV, crystals from MeOH, m. 163°; concentration (1/2 volume) of the mother liquor from IV and addition of HOH gave 11.5 g. III, crystals from 50% MeOH, m. 63°. XIV and methanolic alkali heated 1/2 h., diluted with 5 vols. HOH, and acidified with HOAc, gave 2-cyano-5-(p-dimethylaminophenyl)-2,4-pentadienoic acid (XXXI); 10 g. XXXI, treated as above, gave 6 g. isomeric V/VI; 30 g. of mixture Soxhlet extracted with 50 mL. MeOH, gave 5.6 g. residue, and 11.7 g. crystals from filtrate on concentrating it to 1/2 volume; all solids crystallized from toluene gave yellow flakes of VI, m. 173.5°; mother liquor from extraction, evaporated to dryness, gave 12 g. V, yellow flakes from cyclohexane, m. 90-1°. XV, 16.2 g., 8.4 g. caustic alkali, and 45 mL. MeOH, refluxed 1 h., cooled, HOH added, acidified with HOAc, and impure acid purified through Na salt, gave 2-cyano-7-(p-dimethylaminophenyl)-2,4,6-hexatrienoic acid (XXXII), m. 205-7° (decomposition); 5 g. XXXII, treated as before, gave 4.2 g. of isomeric VII/VIII; mixture dissolved in 100 mL. C6H6, filtered, filtrate concentrated to

1/4 volume, gave 1 g. VIII, crystals from benzene-cyclohexane, m. 191-2°; filtrate, evaporated to dryness, gave 2 g. VII, golden crystals from cyclohexane, m. 116-17°. p-Dimethylaminocinnamaldehyde (XXXIII) and Et acetate, with Na, gave IX, crystals from 80% EtOH, m. 75°. Dimethylaminobenzaldehyde (XXXIV) and di-Et malonate, with piperidine, gave X, yellow flakes from EtOH, m. 110-11°. XI obtained in 25-g. yield by heating XXXIV, 30 g., 13.5 g. malononitrile and 14 mL. Ac2O 6 h. at 120°, red needles from xylene, m. 178-9°. XII obtained from XXXIII and malononitrile. XIII obtained from XXXIV and Bu cyanoacetate with piperidine, yellow crystals from MeOH, m. 145-6°. XIV obtained in 24-g. (40%) yield by heating 29.8 g. XXXIV, 33.6 g. Bu α-cyanocrotonate (XXXV), and 14 g. Ac2O 6 h. at 120°, cooling to 50°, and adding 200 mL. MeOH, orange-red flakes from EtOH, m. 122-3°. Similarly, XV obtained in 9-g. (27.7%) yield from 14.9 g. XXXIV, 19.3 g. XXIX, and 7 g. Ac2O, purple crystals from MeOH, m. 162-3°; XV also obtained from XXXIII and XXXV. Similarly, XVI obtained in 12-g. (31%) yield from 25.8 g. 1,3,3-trimethyl-2-methylenindolin-ω-carboxaldehyde (XXXVI), 11.8 g. ethylidenemalononitrile, and 20 mL. Ac2O, violet crystals from xylene, m. 247-9°; XVII obtained in 8.4-g. (57%) yield from 10 g. XXXVI, 5.3 g. isopropylidenemalononitrile, and 8 mL. Ac2O, blue crystals from xylene, m. 265-6°; XVIII obtained in 8-g. (54%) yield from 10 g. XXXVI and 6 g. 1-cyano-2-ethylcrotononitrile, purple flakes from iso-PrOH, m. 179-80°; XIX obtained in 6.4-g. (42.5%) yield from 10 g. XXXVI and 6 g. butylidenemalononitrile, purple flakes from iso-PrOH, m. 180-2°; XX obtained in 6.8-g. (43%) yield from 10 g. XXXVI and 6.7 g. isopentylidenemalononitrile, purple flakes from iso-PrOH, m. 165-6°; XXI obtained in 8.6-g. (46%) yield from 10 g. XXXVI, 7.3 g. cyclohexylidenemalononitrile, and 7.6 g. Ac2O, dark-blue plates from ligroine, m. 154-5°; XXII obtained in 37-g. (55%) yield from 43 g. XXXVI, 28 g. cyclopentylidenemalononitrile, and 20 mL. Ac2O, blue crystals from xylene, m. 273-5°. XXIII obtained by heating 6 g. XXXVI, 5.4 g. Me cyclohexylidenecyanoacetate (XXXVII), and 18 mL. Ac2O 1 h. at 70-80°, extracting with 6 + 50 mL. cyclohexane, washing exts. with 50% H2SO4, and neutralizing with NaOH to pH 5.5-6, red plates from MeOH, m. 127-8°. As above, XXIV obtained in 20.5-g. (70%) yield from 17 g. XXXVI, 17 g. Me cyclopentylidenecyanoacetate, and 15 mL. Ac2O, violet crystals from iso-PrOH, m. 175-6°; XXV obtained in 8.2-g. (45%) yield from 10.7 g. 1,3,3,5-tetramethyl-2-methylenindoline-ω-carboxaldehyde (XXXVIII), 8.3 g. Bu α-cyanocrotonate, and 50 mL. Ac2O, red plates from MeOH, m. 202°; XXVI obtained from 21.5 g. XXXVIII and 18 g. XXXVII, red plates from MeOH, m. 160°; XXVII obtained from XXXVI and malononitrile, orange plates from EtOH, m. 247-8°; and XXVIII is obtained from XXXVI and Et cyanoacetate, yellow plates from MeOH, m. 147-8°.

IT Dyes
(merocyanine, constitution and spectra of)

IT Spectra
(of merocyanines)

IT Malononitrile, [1-(ethyl-2-methyl-4-(1,3,3-trimethyl-2-indolinylidene)-2-butenylidene]-
(spectrum of)

IT 496-15-1, Indoline
(derivs., spectra of)

IT 126057-95-2P, 2,4-Pentadienoic acid, 2-cyano-5-(p-dimethylaminophenyl)-
RL: PREP (Preparation)
(preparation of)

IT 57711-73-6, Cinnamic acid, α-cyano-p-dimethylamino- 102552-66-9, 2,4,6-Heptatrienoic acid, 2-cyano-7-(p-dimethylaminophenyl)-, butyl ester 113538-90-2, 2,4,6-Heptatrienoic acid, 2-cyano-7-(p-dimethylaminophenyl)- 854880-02-7, Cinnamic acid, α-cyano-p-dimethylamino-, butyl ester 855353-62-7, 2,4-Pentadienoic acid, 2-cyano-5-(p-dimethylaminophenyl)-, butyl ester 855659-96-0, Malononitrile, [1-ethyl-4-(1,3,3-trimethyl-2-indolinylidene)-2-butenylidene]- 860376-02-9, Malononitrile, [2-ethyl-4-(1,3,3-trimethyl-2-indolinylidene)-2-butenylidene]-

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          (spectra of)
IT     103-26-4, Cinnamic acid, methyl ester   1552-97-2, Cinnamic acid,
       p-dimethylamino-, ethyl ester   2826-28-0, Malononitrile,
       (p-dimethylaminobenzylidene)-   3435-56-1, Malonic acid,
       (p-dimethylaminobenzylidene)-, diethyl ester   3695-84-9, Cinnamic acid,
       α-cyano-, methyl ester   4360-47-8, Cinnamonitrile
       21355-54-4, Δ1,α-Cyclopentanemalononitrile,
       2-[2-(1,3,3-trimethyl-2-indolinylidene)ethylidene]-   32444-63-6,
       Cinnamonitrile, p-dimethylamino-   58068-69-2, Malononitrile,
       (p-dimethylaminocinnamylidene)-   92968-17-7, Malononitrile,
       [2-(1,3,3-trimethyl-2-indolinylidene)ethylidene]-   93872-94-7,
       Malononitrile, [4-(1,3,3-trimethyl-2-indolinylidene)-2-butenylidene]-
       95428-43-6, Malononitrile, [1-methyl-4-(1,3,3-trimethyl-2-indolylidene)-2-
       butenylidene]-   96000-62-3, Δ2,γ-Indolinecrotonic acid,
       α-cyano-1,3,3-trimethyl-, ethyl ester   100381-42-8,
       2,4-Pentadienenitrile, 5-(p-dimethylaminophenyl)-   101111-94-8,
       2,4,6-Heptatrienenitrile, 7-(p-dimethylaminophenyl)- 113651-76-6
       , Δ1,α-Cyclohexanemalonitrile, 2-[2-(1,3,3-trimethyl-2-
       indolinylidene)ethylidene]-   113687-60-8, Δ1,α-
       Cyclopentaneacetic acid, α-cyano-2-[2-(1,3,3-trimethyl-2-
       indolinylidene)ethylidene]-, methyl ester   113966-65-7, 2,4-Pentadienoic
       acid, 2-cyano-5-phenyl-, methyl ester   847264-96-4, 2,4,6,8-
       Nonatetraenoic acid, 2-cyano-9-phenyl-, butyl ester   855421-50-0,
       Δ1,α-Cyclohexaneacetic acid, α-cyano-2-[2-(1,3,3-
       trimethyl-2-indolinylidene)ethylidene]-, methyl ester   855608-54-7,
       Δ2,ε-Indolinesorbic acid, α-cyano-1,3,3,5-tetramethyl-
       , butyl ester   855900-79-7, 2,4,6-Heptatrienoic acid, 2-cyano-7-phenyl-,
       butyl ester   856186-84-0, Δ1,α-Cyclohexaneacetic acid,
       α-cyano-2-[2-(1,3,3,5-tetramethyl-2-indolinylidene)ethylidene]-,
       methyl ester
          (spectrum of)

=> d his

       (FILE 'HOME' ENTERED AT 14:59:13 ON 22 JUN 2007)

       FILE 'REGISTRY' ENTERED AT 14:59:19 ON 22 JUN 2007
L1                STRUCTURE UPLOADED
L2                STRUCTURE UPLOADED
L3                STRUCTURE UPLOADED
L4             81 S L1 SSS FULL
L5              0 S L2 SSS FULL
L6             37 S L3 SSS FULL
L7             17 S CYCLOPENTANEMALONONITRILE
L8             50 S CYCLOHEXANEMALONONITRILE
L9              4 S CYCLOHEPTANEMALONONITRILE

       FILE 'CAPLUS' ENTERED AT 15:02:15 ON 22 JUN 2007
                  S L3 OR L5 OR L6 OR L7 OR L8 OR L9

       FILE 'REGISTRY' ENTERED AT 15:02:20 ON 22 JUN 2007
L10             2 S L3

       FILE 'CAPLUS' ENTERED AT 15:02:22 ON 22 JUN 2007
L11             2 S L10
L12           253 S L11 OR L5 OR L6 OR L7 OR L8 OR L9
L13            42 S L4
L14            17 S L6
L15           238 S L7 OR L8 OR L9
L16           279 S L13 OR 1L4 OR L15
L17            19 S L16 AND (CYANINE OR POLYMETHINE)
L18             2 S L16 AND PHOTOPOLYMER?

=> s l16 and (methine)
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         6421 METHINE
          190 METHINES
         6515 METHINE
                (METHINE OR METHINES)
L19           7 L16 AND (METHINE)

=> s (l19 or l18) not l17
L20           6 (L19 OR L18) NOT L17

=> d all 1-6

L20  ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   2005:96112  CAPLUS
DN   142:186505
ED   Entered STN:  03 Feb 2005
TI   Two-photon absorbing polymerizable compositions, their
     photopolymerization and applications for stereophotolithography
     and color filters
IN   Akiba, Masaharu; Takizawa, Hiroo
PA   Fuji Photo Film Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 66 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  C08F002-44
     ICS  C08F002-46; G02B005-22; G03F007-004; G03F007-029
CC   74-4 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
     Section cross-reference(s): 27, 28, 35, 38, 73
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   JP 2005029725        A     20050203    JP 2003-272369         20030709
PRAI JP 2003-272369             20030709
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
 --------------  -----  ----------------------------------------------
 JP 2005029725   ICM    C08F002-44
                 ICS    C08F002-46; G02B005-22; G03F007-004; G03F007-029
                 IPCI   C08F0002-44 [ICM,7]; C08F0002-46 [ICS,7]; G02B0005-22
                        [ICS,7]; G03F0007-004 [ICS,7]; G03F0007-029 [ICS,7]
                 IPCR   C08F0002-44 [I,A]; C08F0002-44 [I,C*]; C08F0002-46
                        [I,A]; C08F0002-46 [I,C*]; G02B0005-22 [I,A];
                        G02B0005-22 [I,C*]; G03F0007-004 [I,A]; G03F0007-004
                        [I,C*]; G03F0007-029 [I,A]; G03F0007-029 [I,C*]
                 FTERM  2H025/AA01; 2H025/AB13; 2H025/AB14; 2H025/AC01;
                        2H025/AD01; 2H025/BC13; 2H025/BC42; 2H025/BD02;
                        2H025/BE00; 2H025/CA00; 2H025/CC11; 2H025/CC20;
                        2H048/CA04; 2H048/CA14; 4J011/AA05; 4J011/AC04;
                        4J011/BB01; 4J011/BB02; 4J011/PA22; 4J011/PB25;
                        4J011/QA00; 4J011/QA03; 4J011/QA04; 4J011/QA06;
                        4J011/QA07; 4J011/QA09; 4J011/TA03; 4J011/UA02;
                        4J011/WA01; 4J011/WA07
AB   The compns. contain polymerizable compds., two-photon absorbing compds.,
     polymerization initiators, and coloring agents.  The compns. are polymerized by
     irradiation with light of wavelength longer than absorption regions of the
     compns. from UV to visible ray and other than absorption peaks to give
     colored products.  The compns. are effectively photopolymd. and
     colored independently of concentration of the coloring agents.
ST   photopolymerizable compn two photon absorption;
     stereophotolithog two photon absorption; color filter two photon
     absorption photopolymn
IT   Photoimaging materials
        (photopolymerizable; photopolymn. of two-photon
        absorbing polymerizable compns. for manufacture of stereophotolithog. and
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      color filters)
IT    Optical filters
      Two-photon absorption
         (photopolymn. of two-photon absorbing polymerizable compns.
         for manufacture of stereophotolithog. and color filters)
IT    Photolithography
      Stereolithography
         (stereophotolithog.; photopolymn. of two-photon absorbing
         polymerizable compns. for manufacture of stereophotolithog. and color
         filters)
IT    66142-15-2P   88253-66-1P   88340-89-0P   681836-46-4P
      RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
      (Reactant or reagent)
         (manufacture of two-photon absorbing compound from; photopolymn. of
         two-photon absorbing polymerizable compns. for manufacture of
         stereophotolithog. and color filters)
IT    115-80-0   120-92-3, Cyclopentanone   769-42-6   927-63-9   1497-49-0
      4485-89-6   4637-24-5   5217-47-0   29636-96-2   61931-68-8   134957-47-4
      165547-54-6   398522-14-0
      RL: RCT (Reactant); RACT (Reactant or reagent)
         (manufacture of two-photon absorbing compound from; photopolymn. of
         two-photon absorbing polymerizable compns. for manufacture of
         stereophotolithog. and color filters)
IT    500908-05-4P
      RL: IMF (Industrial manufacture); TEM (Technical or engineered material
      use); PREP (Preparation); USES (Uses)
         (photopolymn. of two-photon absorbing polymerizable compns.
         for manufacture of stereophotolithog. and color filters)
IT    33628-03-4P   78902-42-8P   500905-67-9P   681836-47-5P   718636-60-3P
      774216-84-1P
      RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM (Technical or
      engineered material use); PREP (Preparation); USES (Uses)
         (two-photon absorbing compound; photopolymn. of two-photon
         absorbing polymerizable compns. for manufacture of stereophotolithog. and
         color filters)
IT    52560-25-5   111545-69-8   183272-14-2   289892-10-0   308116-42-9
      553654-84-5   680232-65-9   680232-71-7   680232-73-9   680232-75-1
      680232-77-3   680232-79-5   680232-87-5   718636-58-9   718636-62-5
      718636-63-6   752253-83-1   809233-25-8   816453-43-7   831218-03-2
      831218-04-3 831218-05-4 831218-06-5   835594-48-4
      835621-22-2
      RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES
      (Uses)
         (two-photon absorbing compound; photopolymn. of two-photon
         absorbing polymerizable compns. for manufacture of stereophotolithog. and
         color filters)

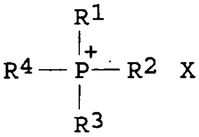
L20   ANSWER 2 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
AN    1997:480651  CAPLUS
DN    127:101775
ED    Entered STN:  02 Aug 1997
TI    Photoradical generating agent, photopolymerizable composition,
      and process of presensitized lithographic printing plate
IN    Nakayama, Noritaka
PA    Konica Co., Japan
SO    Jpn. Kokai Tokkyo Koho, 24 pp.
      CODEN: JKXXAF
DT    Patent
LA    Japanese
IC    ICM  G03F007-029
      ICS  C07F009-54; C08F002-50; G03F007-031; C07C381-12
CC    74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other
      Reprographic Processes)
      Section cross-reference(s): 35, 38
FAN.CNT 1
```

|  | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 09134009 | A | 19970520 | JP 1995-291286 | 19951109 |
| PRAI | JP 1995-291286 |  | 19951109 |  |  |

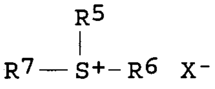
CLASS

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|---|---|---|
| JP 09134009 | ICM | G03F007-029 |
|  | ICS | C07F009-54; C08F002-50; G03F007-031; C07C381-12 |
|  | IPCI | G03F0007-029 [ICM,6]; C07F0009-54 [ICS,6]; C08F0002-50 [ICS,6]; G03F0007-031 [ICS,6]; C07C0381-12 [ICS,6] |
|  | IPCR | G03F0007-029 [I,C*]; G03F0007-029 [I,A]; C07C0381-00 [I,C*]; C07C0381-12 [I,A]; C07F0009-00 [I,C*]; C07F0009-54 [I,A]; C08F0002-46 [I,C*]; C08F0002-50 [I,A]; G03F0007-031 [I,C*]; G03F0007-031 [I,A] |

GI


$R^4-\overset{R^1}{\underset{R^3}{P^+}}-R^2\ X^-$

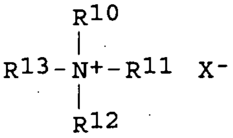
I


$R^7-\overset{R^5}{S^+}-R^6\ X^-$

II

$R^8-I^+-R^9\ X^-$

III


$R^{13}-\overset{R^{10}}{\underset{R^{12}}{N^+}}-R^{11}\ X^-$

IV

AB In the photoradical generating agent containing an onium salt represented by I, II, III, and IV (R1-4, R10-12 = alkyl, aryl, aralkyl; R5-7 = alkyl, aryl; R8,9 = aryl; X- = counter ion), a radical generating agent, and carbon black, the onium salt and/or the radical generating agent is adsorbed on carbon black. The counter ion may be a halogen ion. The radical generating agent may be a bisimidazole derivative The composition is used for a photosensitive layer of a presensitized lithog. printing plate, in which the photosensitive layer contains a compound having ≥1 ethylenic unsatd. bond, a binder, and the photoradical generating agent. The presensitized lithog. printing plate is exposed by a laser beam, and then unexposed areas of the protective layer and the photosensitive layer are eluted. A high concentration of the photoradical was generated by irradiating IR light.

ST photoradical generator presensitized lithog printing plate

IT Lithographic plates
(photopolymerizable composition in presensitized lithog. printing plate)

IT Carbon black, uses
RL: NUU (Other use, unclassified); USES (Uses)
(photopolymerizable composition in presensitized lithog. printing plate)

IT 869-51-2, Tris(2-hydroxyethyl)sulfonium chloride 1643-19-2, Tetrabutylammonium bromide 3115-68-2, Tetrabutylphosphonium bromide 3462-97-3, 4-Methoxybenzyltriphenylphosphonium chloride 4189-82-6 5197-95-5, Benzyltriethylammonium bromide 5667-47-0 14937-42-9, Tetra(decyl)ammonium bromide 25316-59-0, Benzyltributylammonium bromide 58377-39-2
RL: MOA (Modifier or additive use); USES (Uses)
(photopolymerizable composition in presensitized lithog. printing plate)

IT 2256-48-6 12157-31-2 108961-97-3 109347-70-8 110930-60-4 173474-43-6
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photopolymerizable composition in presensitized lithog. printing plate)

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IT     90-94-8   1707-68-2   82799-44-8   189515-41-1
       RL: MOA (Modifier or additive use); USES (Uses)
          (photoradical generating agent in composition in presensitized lithog.
          printing plate)

L20    ANSWER 3 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
AN     1992:436523  CAPLUS
DN     117:36523
ED     Entered STN:  26 Jul 1992
TI     Electrophotographic photoreceptor
IN     Miyazaki, Hajime; Go, Shintetsu; Miyaji, Toshie; Kashizaki, Yoshiro
PA     Canon K. K., Japan
SO     Jpn. Kokai Tokkyo Koho, 8 pp.
       CODEN: JKXXAF
DT     Patent
LA     Japanese
IC     ICM  G03G005-06
       ICS  G03G005-06
CC     74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other
       Reprographic Processes)
FAN.CNT 1
       PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
       ---------------     ----   --------    --------------------   --------
PI     JP 03196046          A     19910827    JP 1989-335146         19891226
       JP 2641072           B2    19970813
PRAI JP 1989-335146               19891226
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
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 JP 03196046      ICM    G03G005-06
                  ICS    G03G005-06
                  IPCI   G03G0005-06 [ICM,5]; G03G0005-06 [ICS,5]
                  IPCR   G03G0005-06 [I,C*]; G03G0005-06 [I,A]
GI
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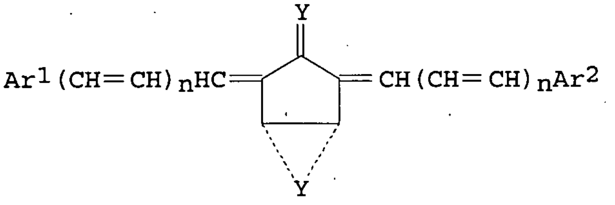

I

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AB     An electrophotog. photoreceptor has on an elec. conductive support a
       photoconductive layer containing at least one methine dye [I; Ar1,
       Ar2 = tert-amino-containing aromatic hydrocarbyl, ≥3 benzene ring-fused
       polycyclic hydrocarbyl; X = O, S, C(CN)2; Y = fused or bivalent aromatic
       hydrocarbon group; n = 0-2].  The electrophotog. photoreceptor has
       improved carrier generation and/or transporting efficiency and shows high
       sensitivity, excellent durability, and excellent potential stability
       during long-term use.
ST     electrophotog photoreceptor methine dye; charge generating agent
       methine dye
IT     Electrophotographic photoconductors and photoreceptors
          (with charge-generating layers containing methine dyes)
IT     142050-52-0 142050-53-1   142050-54-2 142050-55-3
       142050-56-4 142050-57-5 142050-58-6
       142050-59-7 142050-60-0 142050-61-1
       RL: USES (Uses)
          (electrophotog. photoreceptor with charge-generating layer containing)
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```
L20  ANSWER 4 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
AN   1981:415973  CAPLUS
DN   95:15973
ED   Entered STN:  12 May 1984
TI   Organic electrophotosensitive materials for migration imaging processes
IN   Webster, Frank G.; Regan, Michael T.
PA   Eastman Kodak Co., USA
SO   U.S., 28 pp. Cont.-in-part of U.S. Ser. No. 818,695, abandoned.
     CODEN: USXXAM
DT   Patent
LA   English
IC   G03G013-24
INCL 430041000
CC   74-3 (Radiation Chemistry, Photochemistry, and Photographic Processes)
FAN.CNT 2
     PATENT NO.          KIND   DATE        APPLICATION NO.       DATE
     ---------------     ----   --------    --------------------  --------
PI   US 4256819           A     19810317    US 1978-928675        19780728
     FR 2399052           A1    19790223    FR 1978-21823         19780724
     FR 2399052           B1    19800404
     JP 54024025          A     19790223    JP 1978-90075         19780725
     GB 2002914           A     19790228    GB 1978-31058         19780725
     GB 2002914           B     19820217
PRAI US 1977-818695       A2    19770725
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 4256819      IC     G03G013-24
                 INCL   430041000
                 IPCI   G03G0013-24; G03G0013-00 [C*]
                 IPCR   G03G0017-00 [I,C*]; G03G0017-04 [I,A]
                 NCL    430/041.000; 430/076.000; 430/078.000; 430/079.000;
                        430/083.000; 544/300.000; 548/120.000
 FR 2399052      IPCI   G03G0017-04; G03G0017-00 [C*]
                 IPCR   G03G0017-00 [I,C*]; G03G0017-04 [I,A]
 JP 54024025     IPCI   G03G0017-04; G03G0017-00 [C*]
                 IPCR   G03G0017-00 [I,C*]; G03G0017-04 [I,A]
 GB 2002914      IPCI   G03G0017-04; G03G0017-00 [C*]; C09B0021-00
                 IPCR   G03G0017-00 [I,C*]; G03G0017-04 [I,A]
GI
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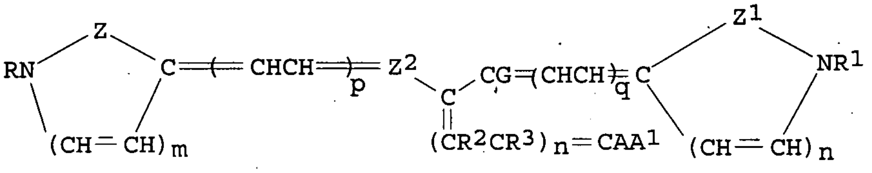

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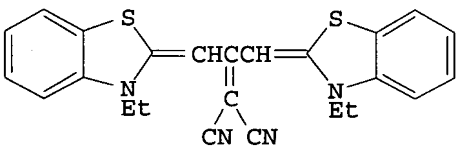

II

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AB   Electrophotosensitive compds. useful in electrophoretic imaging process
     comprise I (Z, Z1 = atoms to complete a basic type heterocyclic ring; Z2 =
     N or a methine group CG1; G, G1 = H, aryl, alkyl, or taken
     together complete a mononuclear of fused polynuclear carbocyclic ring;
     A,A1 = alkyl, aryl, carboxy, alkoxycarbonyl, CN, NO2, or together form a
     heterocyclic ring; R,R1 = H, alkyl, aralkyl, aryl; R2,R3 = H, alkyl, aryl,
     CN, or taken together with the atoms to which they are attached represent
```

a C5-6 carbocyclic ring; m,n = 0,1; p,q,r = 0,1,2). Thus, 5g of the solution containing Isopar G 2.2, Solvesso 1.3, Piccotex 100 1.4, PVT (poly(vinyltoluene-lauryl methacrylate-Li methacrylate-methacrylic acid) (56/40/3.6/0.4)) 0.1g was combined with II 0.45 g (milled 3 h on a paint shaker), and tested in an electrophoretic imaging apparatus (voltage between electrodes 2 kV and 1000 W Xe lamp exposure) to give an excellent quality neg. image reproduction of the original on one electrode.

ST electrophoretic imaging electrophotosensitive compd; org photoconductor electrophoretic image formation

IT Photography, electro-
(electrophoretic, organic electrophotosensitive compds. for)

```
IT   2256-48-6    2509-88-8    2573-44-6    2573-45-7    2573-46-8
     13320-92-8   18249-01-9   24054-44-2   28279-27-8   54849-72-8
     56387-34-9   65159-60-6   65159-61-7   65159-65-1   65159-66-2
     65159-68-4   65159-69-5   65159-71-9   65159-72-0   65159-73-1
     65159-74-2   65159-75-3   65159-77-5   65159-78-6   65159-79-7
     65159-80-0   65159-81-1   65159-82-2 65159-83-3   65159-85-5
     65181-56-8 65181-57-9   65181-58-0   65206-45-3   65206-46-4
     70516-34-6   70516-71-1   70516-72-2   70516-73-3   70516-74-4
     70516-75-5   70516-76-6   70516-77-7   70516-79-9   70516-80-2
     70516-81-3   70516-82-4   70516-83-5   70516-84-6   70516-85-7
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     70516-91-5   70516-92-6   70516-93-7 70545-32-3
     70545-33-4   78021-12-2   78021-13-3   78021-14-4   78021-15-5
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     78021-21-3   78021-22-4   78021-23-5   78021-24-6   78021-25-7
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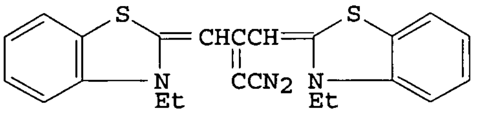
     78021-31-5   78021-32-6   78021-33-7   78021-34-8   78021-35-9
     RL: USES (Uses)
        (photoconductor, for electrophoretic migration imaging process)
```

L20 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
AN 1978:43705 CAPLUS
DN 88:43705
ED Entered STN: 12 May 1984
TI Electrophotosensitive materials for migration imaging processes
AU Webster, Frank Glen; Regan, Michael Thomas
CS UK
SO Research Disclosure (1977), 163, 33-8 (No. 16324)
CODEN: RSDSBB; ISSN: 0374-4353
DT Journal; Patent
LA English
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic Processes)

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| | --------------- | ---- | -------- | -------------------- | -------- |
| PI | RD 163024 | | 19771110 | | |

PRAI RD 1977-163024 19771110
GI



I

AB Thirty six heterocyclic compds. containing methine linkages are described for use as electrophotosensitive pigments for migration imaging. Thus, I 0.045 g and a 5g aliquot of a solution containing Isopar G 2.2, Solvesso 1.3, Piccotex 100 1.4, and poly(lauryl methacrylate-Li methacrylate-methacrylic acid-vinyltoluene) (40:3.6:0.4:56) 0.1 g were combined with stainless steel balls 12g and milled for 3 hr on a paint shaker. The material was then tested and observed to be

```
      electrophotosensitive as evidenced by obtaining a neg. appearing image of
      an original on 1 electrode and a complementary image on the other.
ST    electrophotosensitive pigment electrophotog migration imaging
IT    Photography, electro-
         (migration imaging in, electrophotosensitive heterocyclic
         methine compds. for)
IT    2256-48-6   13320-92-8   18249-01-9   24054-44-2   28279-27-8
      65159-60-6   65159-61-7   65159-62-8   65159-63-9   65159-64-0
      65159-65-1   65159-66-2   65159-67-3   65159-68-4   65159-69-5
      65159-70-8   65159-71-9   65159-72-0   65159-73-1   65159-74-2
      65159-75-3   65159-76-4   65159-77-5   65159-78-6   65159-79-7
      65159-80-0   65159-81-1   65159-82-2 65159-83-3   65159-84-4
      65159-85-5   65181-56-8 65181-57-9   65181-58-0   65206-45-3
      65206-46-4
      RL: USES (Uses)
         (in electrophotog. migration imaging process)

L20   ANSWER 6 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
AN    1973:36228  CAPLUS
DN    78:36228
ED    Entered STN:  12 May 1984
TI    Silver halide photographic emulsions supersensitized with an oxadiazole
      and a methine dye
IN    Brooks, Dugald A.
PA    Eastman Kodak Co.
SO    U.S., 7 pp.
      CODEN: USXXAM
DT    Patent
LA    English
IC    G03C
INCL 096123000
CC    74-2 (Radiation Chemistry, Photochemistry, and Photographic Processes)
FAN.CNT 1
      PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
      ---------------     ----    --------    --------------------   --------
PI    US 3615633           A      19711026    US 1969-851074         19690818
PRAI US 1969-851074        A      19690818
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 US 3615633      IC     G03C
                 INCL   096123000
                 IPCI   G03C0001-28; G03C0001-08 [C*]
                 NCL    430/573.000; 430/576.000; 548/143.000; 548/156.000
GI    For diagram(s), see printed CA Issue.
AB    Supersensitizing dye mixts. for Ag halide emulsions, giving essentially
      clear layers with excellent keeping stability and causing relatively
      little or no fogging in both fresh and incubated conditions, are made up
      of a sensitizing methine dye and an oxazole, oxadiazole,
      thiazole, or thiadiazole (I; Y = O, S; Z = an unsubstituted or substituted
      methine group or N; R = C1-4 alkyl, aryl, amino, amido, Cl, Br;
      and R1 = R, H).  Thus, a Ag(Br,I) gelatin emulsion containing, per mole Ag,
      0.04 g of 3,3'-diethylselenadicarbocyanine iodide (II) and 0.66 g I (Y =
      O, Z = N, R = Ph, R1 = Me) (III) after processing photog., had a relative
      speed of 132, a γ of 0.90, and a fog of 0.04 vs. the resp. values of
      100, 0.92, and 0.04 for a III-free control emulsion containing II alone.
ST    supersensitizing dye photog mixt; methine dye supersensitizing
      photog; oxazole supersensitizer photog; oxadiazole supersensitizer photog;
      thiazole supersensitizer photog; thiadiazole supersensitizer photog
IT    Photographic sensitizers
         (super-, from methine-oxadiazole dye mixts.)
IT    92-71-7   852-38-0   905-62-4   1437-57-6   1679-98-7   1806-34-4
      1843-16-9   2002-03-1   2425-95-8   3704-40-3   4046-03-1   16157-14-5
      25877-46-7   31709-08-7   39719-78-3   39719-81-8   39719-82-9
      39719-87-4   39719-88-5   39719-89-6   39719-90-9   39719-92-1
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     RL: USES (Uses)
        (photog. supersensitizers from methine dyes and)
IT   977-96-8   1742-90-1 2256-48-6   2573-45-7   3071-69-0
     18371-32-9   18371-33-0   18371-38-5   21414-07-3   28279-27-8
     32151-93-2   32456-19-2   39719-96-5   39719-97-6   39719-98-7
     39719-99-8   39720-00-8   39720-02-0   39720-03-1   39720-04-2
     39839-00-4
     RL: USES (Uses)
        (photog. supersensitizers from oxadiazole dyes and)


=> d his

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L2              STRUCTURE UPLOADED
L3              STRUCTURE UPLOADED
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L5            0 S L2 SSS FULL
L6           37 S L3 SSS FULL
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L8           50 S CYCLOHEXANEMALONONITRILE
L9            4 S CYCLOHEPTANEMALONONITRILE

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L13          42 S L4
L14          17 S L6
L15         238 S L7 OR L8 OR L9
L16         279 S L13 OR 1L4 OR L15
L17          19 S L16 AND (CYANINE OR POLYMETHINE)
L18           2 S L16 AND PHOTOPOLYMER?
L19           7 S L16 AND (METHINE)
L20           6 S (L19 OR L18) NOT L17

=> log y
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FULL ESTIMATED COST                                    92.12     625.30

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                   -19.50     -19.50

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